

# ANNUAL REPORT

OF THE

REMOTE STORAGE

## SUPERINTENDENT

OF THE

# CITY WATER WORKS

TO THE

MAYOR OF THE CITY

FOR THE

Year Ending December 31, 1909.

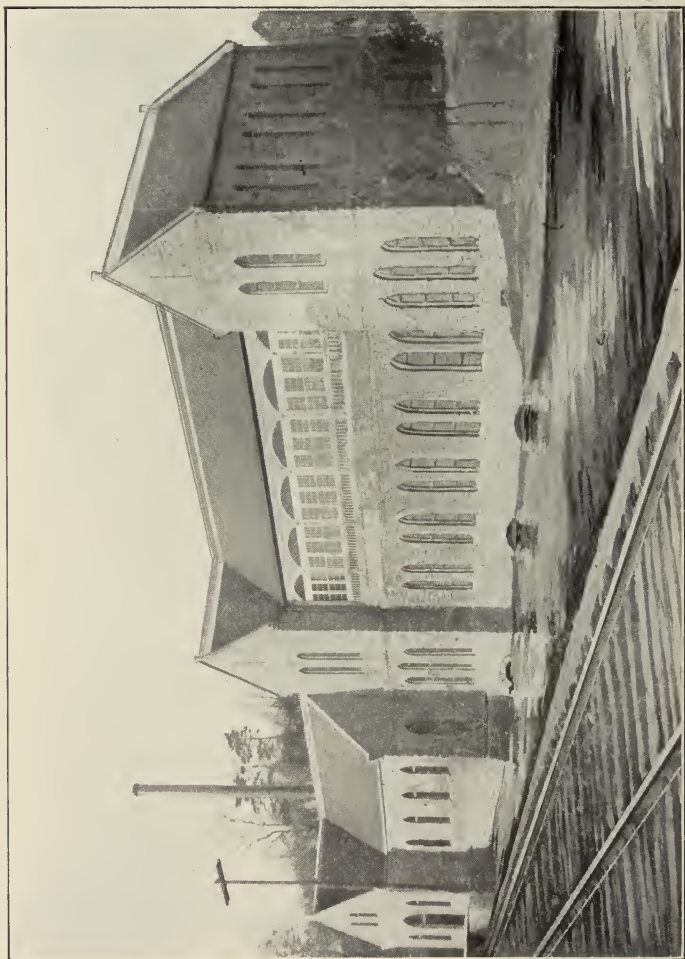
---

RICHMOND:  
CLYDE W. SAUNDERS, CITY PRINTER,  
1910.





Digitized by the Internet Archive  
in 2015



NEW PUMP-HOUSE.

ANNUAL REPORT

OF THE

SUPERINTENDENT

OF THE

CITY WATER WORKS

TO THE

MAYOR OF THE CITY

FOR THE

THE LIBRARY OF THE  
MAY 8 1912  
UNIVERSITY OF ILLINOIS

Year Ending December 31, 1909.

---

RICHMOND:  
CLYDE W. SAUNDERS, CITY PRINTER,  
1910.



628.1  
R41  
1909  
cop. 2

## COMMITTEE ON WATER.

---

M. R. MILLS, *Chairman.*

S. H. COTTRELL, *Sub-Chairman.*

R. G. RENNOLDS,

JOHN A. CUTCHINS,

T. F. GREEN,

E. R. FULLER,

GRAHAM B. HOBSON,

HARRY HUBER,

F. H. GARBER,

P. H. DONAHOE,

A. W. BENNETT.

---

## OFFICERS.

---

E. E. DAVIS ..... *Superintendent.*

WILLIAM LAWTON, JR. .... *Assistant Superintendent.*

ALEXANDER DELANEY. .... *Engineer-in-charge of Pumping Stations.*

J. T. VAUGHAN. .... *Keeper of New Reservoir.*

R. B. WALTON ..... *Keeper of Marshall Reservoir.*







# ANNUAL REPORT.

---

OFFICE OF CITY WATER WORKS,

OFFICE OF SUPERINTENDENT,

CITY HALL, RICHMOND, VA., December 31, 1909.

HONORABLE D. C. RICHARDSON,

*Mayor.*

SIR: I beg to submit herewith the annual report of the Water Department for the year ending December 31st, 1909, which is my second annual report and covers the eightieth year of the operations of the City Water Works.

The appropriations for the year to the Department were \$471,021.25, and the unexpended balance \$224,411.55. This also includes the amount carried forward for the installation and erection of the electric pumping plant at the New Pump House, all of which is shown in Table No. 1.

The receipts for 1909, less refunded bills, were \$210,411.28, to which should be added \$30,808.76, the value of water used for municipal purposes, churches and charity, making a grand total of \$241,220.04. The disbursements were \$246,609.70, of which \$184,141.54 was for betterments, including stock on hand amounting to \$17,471.89, and \$62,468.16 for pay rolls and repairs. The ratio of maintenance to receipts (\$210,411.28) was 33.68 per cent.

For a fuller understanding I suggest that you study the annexed tables for all details of the year's work and full records.

## PUMP HOUSES AND MACHINERY.

The report of the Engineer of Pumping Stations herewith submitted fully explains the condition of the buildings and machinery.

Table No. 3 shows the amount of water pumped into the reservoirs during the year, also into the stand pipe, as well as the average daily consumption, which is a little less than in 1908, brought about by the increase in the number of meters.

Assuming the population to be 115,700 (as estimated by our Health Department from the local census of 1907, and based upon the annual increase as reported by the United States Census Bureau) the daily per capita consumption is shown to be 108 gallons.

During the year the water power pumps have been kept in a fair condition and performed good work. The electric plant is in a good condition and working in a satisfactory manner supplying power not only to the stand pipe but to one of the centrifugal pumps.

The Old Pump House and property was turned over to the Committee on Electricity on August 1st, 1909, and all the pumps at this station were abandoned, thereby requiring the use of one of the centrifugal pumps to

make up the deficiency. All the water used in the City is now being pumped at the New Pump House.

The centrifugal motor driven pumps at the New Pump House were completed and accepted July 1st, 1909, one of which has been in constant use since August 1st giving general satisfaction. There are four of these pumps, each with a capacity of delivering 4,000,000 gallons daily into the reservoirs, and when the City's municipal electric plant is completed we will be furnished with power enough to run all four with a total capacity of delivering 16,000,000 gallons daily. When this power is furnished the water power pumps can be stopped and machinery generally put in a more attractive shape. The water power pumps have been in use since 1883, with very little intermission.

The cost of pumping by electric power at the stand pipe was lessened because of a larger consumption, the cost being \$39.23 per million gallons including interest on the plant and redemption of bonds and \$15.62 per million gallons excluding interest. The daily average consumption was 793,624.89 gallons and the daily capacity is 2,800,000 gallons. As the quantity consumed increases the cost per million gallons will be reduced, because the cost of operation remains the same.

The canal and race-ways are in good condition and the gates at the Five and Nine Mile Locks have given us very little trouble during the year

#### RESERVOIRS.

The reservoirs, both old and new, are also in good condition. The fence, etc., at the new reservoir has been painted but some repairs and improvements are necessary at the old reservoir.

#### WATER MAINS.

During the year 24,751 feet of street mains and 3,868 feet of pump mains were laid, 91 valves set and 42 fire hydrants.

There was some complaint of lack of pressure by parties along the high points in the city (not, however, from those on the Stand Pipe service). This condition has been improved by turning into some of the high points water from the Stand Pipe service and I am now installing a separate main between the pump mains and the old reservoir, also a 16-inch main along Madison street from Main to Broad street. After this work has been done the pressure will be increased on the other high points.

I would call especial attention to the need of a new feed main from the new reservoir and also to the necessity of fire mains as recommended to the Finance Committee in the amounts requested for 1910.

#### METERS.

During the year 1,510 meters were put in; 1,479 of which were furnished by the city and 31 furnished and paid for by private parties, including 5 large meters for private fire connections. The total number of meters set in the city on December 31st, 1909, was 12,146, the number of taps 18,000, from which it will be seen that 66 per cent. of all the taps are metered.

## QUALITY OF WATER.

Herewith is submitted the report of the Director of the Settling Basins and Laboratory of the City Water Works for the year 1909, in which the character of water is shown to be very fair during the year and I would call your attention to this comprehensive report, which forcibly presents the importance of having and continuing to make analyses and bacteriological examinations of the water.

## SETTLING BASINS.

The Settling Basins were put into operation on December 22nd, and as the water was fairly clear and some little adjusting of the coagulating machinery was necessary, the coagulation was not commenced until the last day of the year. I am in hopes to demonstrate to the citizens that there may be no further occasion for complaint about muddy water.

## RECOMMENDATIONS.

I would recommend that the feed mains and connections and also the fire lines be laid as early as possible as per recommendations submitted to the Finance Committee, thereby increasing the pressure both for domestic and fire purposes, also that connections be made with the mains near and with the old reservoir so that the old reservoir can be cleaned out, as there is considerable sediment in the reservoir and it is very necessary that this should be done during the year. The amount necessary for this is included in the amounts requested for 1910. I would further recommend that a brick smoke stack be built for the boilers at the old steam pump and the installation of electric machinery at the Settling Basins for more economically raising and lowering the gates and hoisting coagulant, which machinery could be connected with our water works electric plant at the new pump house.

There is an accumulation of mud in the small mains in the city which should be removed as early as possible to prevent in future the stirring up of mud during time of fires or repairs.

It has been clearly proven that the introduction of meters is of great benefit and the only way to prevent leaks and waste and also increases the pressure, for which reasons I hope that in the near future the Council will see fit to make an appropriation to meter all the unmetered taps.

## CONCLUSION.

In concluding this report I wish to say that during the year I have put forth my best efforts to bring the water works of this city up to a high standard of efficiency.

I desire to extend to the Committee on Water my thanks for the many courtesies shown and assure them of my appreciation of the assistance rendered me in my recommendations for improvements.

In all the different departments of the work the officers and employes have performed their duties conscientiously and to the best interests of the city and I cheerfully commend them to you for their faithfulness to duty.

Respectfully submitted,

E. E. DAVIS,

*Superintendent.*

# REPORT OF ENGINEER OF PUMPING STATIONS

RICHMOND, VA., *December 31, 1909.*

MR. E. E. DAVIS,

*Superintendent City Water Works, Richmond, Va.*

SIR: I herewith submit to you a report of the machinery and buildings under my care, and of the amount of water pumped to the Old and New Reservoirs during the year 1909, also a statement of the amount of water pumped during that time into the Stand Pipe from the New Reservoir.

## OLD PUMP HOUSE.

The Old Pump House was used in pumping water to the Old Reservoir up to August 1st. After having been in use for seventy-five years this plant was abandoned in order to make place for the Electric Lighting plant now under construction for the City of Richmond. Note from table that the amount of water pumped from this station from January 1st to August 1st, 1909, amounted to 944,753,243 gallons.

## NEW PUMP HOUSE.

The plunger pumps at this house are in good condition and have been working satisfactorily during the year, various repairs having been made throughout this period to keep up their efficiency. Since the admission of clear water from the Settling Basins on December 22nd, however, the conditions have been materially changed. Formerly the supply of water was drawn through the forebay through the suction pipe under a head of about sixteen feet, which being constant the pumps worked with regularity and there was no difficulty in calculating the amount of water pumped; but with the new arrangement the head of water in the Settling Basin is constantly varying, which so effects the revolutions of the pumps that the speed is no longer constant and a new system of measuring the output of the pumps will have to be adopted. I therefore recommend a revolution counter to each of the three groups of pumps in order to obtain more precision.

## STEAM PUMP.

The steam pump was operated at intervals during six months of the year, as shown in tabular statement, and is practically in good working condition. The boilers, although old, may prove useful for several years to come, but the smoke-stacks are in a condition requiring immediate attention and should be replaced at an early date. I do not recommend, however, for the future, iron or steel stacks, but suggest that one substantial brick stack, say six hundred horse-power capacity, which would supply our present needs as well as the requirements of the future. This should be placed at a point adjacent to the present boilers, between the Pump House building



and the Richmond canal level. In order to make connection between the new stack and the boilers, it would be necessary to change the system of breaching. The probable cost of this improvement will be between \$2,500 and \$3,000. I beg to refer you to my report of last year under the head of Steam Pump that a coal storage building should be erected in order to facilitate and cheapen the storage of coal. This is a subject of importance and I hope will meet with your favorable consideration.

#### CENTRIFUGAL PUMP BUILDING.

During the year there has been erected under the management of Engineer Trafford, the Centrifugal Pump Building, equipped with a plant of electrical centrifugal pumps with a total capacity of 16,000,000 gallons per day of twenty-four hours. We are now working only one pump each day, not having electrical power at our command to do more than this. The small electric plant installed in the Annex Building to drive the pumps at the Stand Pipe, having a surplusage of power, has enabled us to do this up to the present time. With the completion of the electric plant now being erected on the site of the Old Pump House sufficient power will be provided, as per contract with City Water Works. The pumps themselves have been thoroughly tested, and seem to come up to the required specifications. They are now taking clear water from the flume, as is the case with the entire pumping system. Since the completion of this building a heating apparatus has been added at a cost of about \$250.00.

#### ANNEX BUILDING AND STAND PIPE.

The electric plant in the Annex Building consisting of turbine wheel with all electrical apparatus pertaining to it, and also the engine duplicate plant, is in good working condition.

The pumps under the Stand Pipe are in fairly good order but have given some trouble during the year on account of making necessary repairs. You will observe from the table showing the draft of water from the New Reservoir, the increasing demand for water in the western district during the year. In December, 1909, the draft was 33,200,008 gallons, while in December of the previous year it was only 16,719,974 gallons, an increase of nearly one hundred per cent. As it frequently happens that one pump is thrown out of work on account of some defect in its machinery necessitating repair, the remaining pump is incapable of furnishing the needed supply. Under these conditions it is evident that an early increase in pumping power must be provided.

In conclusion, I wish to thank and express my appreciation to the foremen and men who have co-operated and worked with me so cheerfully and rendered to this department an intelligent and conscientious discharge of their duties.

Very respectfully submitted,

ALEX. DELANEY,  
*Engineer-in-charge.*

## LABORATORY REPORT.

---

RICHMOND, VA., *February 7, 1910*

MR. E. E. DAVIS,

*Superintendent City Water Department,*

SIR:—I have the honor to submit the annual report of the Water Department's Laboratory and Settling Basins for the year 1909.

Regular examinations of the public water supply have been continued throughout the entire year. No experiments were conducted on the basins before putting them into operation, December 22nd, as it was impossible to know when such experiments would be interrupted by the work of engineers.

Samples were collected daily from James River at a point opposite the laboratory. The routine work on these samples consisted of examinations for turbidity, color, alkalinity, and total bacterial count and the "presumptive test" for bacillus coli.

On August 6, 1909, the Old Pump House was closed, from that time until the basins were put into operation, the entire water supply was taken from the feeder of the New Pump House, which is filled at Bosher's dam. During most of this period river samples were not taken on Sundays and holidays. Since the Settling Basins have been in operation samples have been collected daily from the river.

Canal samples were collected daily (Sundays and holidays excepted) and examined for turbidity, alkalinity, bacterial content and "presumptive test" for bacillus coli. Shortly after the feeder of the New Pump House became the total water supply, samples were taken daily and all the above tests made except the bacteria and bacillus coli examinations on Sundays and holidays. Since the new intake has been in use in connection with the Settling Basins, only one examination a week has been made of the canal water.

Samples were collected daily from the time of putting them into operation, and examined for turbidity, color, alkalinity, total bacteria count and "presumptive test" for bacillus coli.

The total number of samples examined during the year was 685. Of these, 348 were from James River; 317 were from the canal, and 20 were from the Settling Basins.

Complete sanitary analysis were made when deemed necessary. These analyses and all other work referred to above are on file in the laboratory.

Table I gives the turbidity readings. Table II the bacteriological count and Table III the monthly averages of these, as well as of color, and alkalinity from James River at Settling Basins. Tables IV, V, and VI give the corresponding data for the canal water.



TABLE I.

*Daily Turbidity (Silica Scale, Parts per Million) of James River at Richmond, Va., During 1909*

| DAY OF MONTH<br>1909 | January | February | March | April | May  | June  | July | August | September | October | November | December |
|----------------------|---------|----------|-------|-------|------|-------|------|--------|-----------|---------|----------|----------|
| 1 . . . . .          | 120     | 22       | 28    | 23    | 200  | 30    | 320  | 17     | 45        | 35      | 22       | 3        |
| 2 . . . . .          | 140     | 23       | 23    | 18    | 65   | 85    | 430  | 17     | 27        | 20      | 12       | 2        |
| 3 . . . . .          | 125     | 18       | 17    | 18    | 30   | 290   | 300  | 35     | 27        | . . .   | 18       | 2        |
| 4 . . . . .          | 110     | 18       | 260   | 18    | 85   | 250   | 140  | 30     | 30        | 22      | 12       | 2        |
| 5 . . . . .          | 75      | 18       | 45    | 12    | 30   | 390   | 170  | 45     | 45        | 22      | 12       | . .      |
| 6 . . . . .          | 480     | 23       | 23    | 18    | 30   | 350   | 180  | 55     | 18        | . . .   | 12       | 2        |
| 7 . . . . .          | 220     | 10       | 45    | 18    | 23   | 280   | 110  | 30     | 22        | 12      | . . .    | 2        |
| 8 . . . . .          | 160     | 12       | 30    | 17    | 18   | 120   | 110  | 30     | 17        | 12      | 8        | 3        |
| 9 . . . . .          | 180     | 12       | 45    | 12    | 31   | 125   | 240  | 22     | 17        | 10      | 12       | 2        |
| 10 . . . . .         | 135     | 95       | 30    | 23    | 23   | 65    | 125  | 22     | *230      | . .     | 7        | 3        |
| 11 . . . . .         | 45      | 150      | 23    | 12    | 18   | 450   | 145  | 30     | 22        | 55      | 7        | 2        |
| 12 . . . . .         | 45      | 170      | 35    | 12    | 12   | 150   | 95   | 22     | . . .     | 22      | 7        | . . .    |
| 13 . . . . .         | 18      | 320      | 23    | 23    | 28   | 600   | 65   | 22     | 125       | 22      | 7        | *110     |
| 14 . . . . .         | 18      | 160      | 18    | 12    | 18   | 540   | 23   | 28     | 120       | 30      | . . .    | 12       |
| 15 . . . . .         | 12      | 115      | 18    | 360   | 55   | 300   | 18   | 22     | 45        | 55      | 7        | 370      |
| 16 . . . . .         | 18      | 100      | 18    | 1,000 | 30   | 180   | 55   | 22     | 28        | 200     | 7        | 460      |
| 17 . . . . .         | 18      | 28       | 18    | 480   | 22   | 190   | 18   | 17     | 18        | . .     | 18       | 250      |
| 18 . . . . .         | 23      | 28       | 13    | 260   | 17   | 150   | 12   | 28     | 18        | 65      | 28       | 330      |
| 19 . . . . .         | 18      | 35       | 23    | 110   | 17   | 450   | 28   | 22     | . . .     | 45      | 12       | . .      |
| 20 . . . . .         | 45      | 25       | 17    | 45    | 12   | 400   | 17   | 35     | 35        | 55      | 18       | 125      |
| 21 . . . . .         | 45      | 170      | 12    | 35    | *210 | 420   | 22   | 55     | 35        | 55      | . . .    | 125      |
| 22 . . . . .         | 30      | 160      | 12    | 45    | 17   | 320   | 18   | 30     | 45        | 65      | 7        | 140      |
| 23 . . . . .         | 28      | 110      | 12    | 27    | 125  | 230   | 18   | 30     | 65        | 28      | 3        | 220      |
| 24 . . . . .         | 23      | 85       | 17    | 22    | 200  | 450   | 17   | 22     | 45        | . .     | 12       | 35       |
| 25 . . . . .         | 35      | 115      | 23    | 35    | 100  | 225   | 12   | 30     | 22        | 18      | . .      | 30       |
| 26 . . . . .         | 35      | 115      | 85    | 28    | 45   | 140   | 12   | 12     | . . .     | 18      | 7        | 35       |
| 27 . . . . .         | 30      | 65       | 145   | 30    | 35   | 45    | 12   | 16     | 22        | 22      | 7        | 35       |
| 28 . . . . .         | 28      | 45       | 65    | 22    | 45   | 240   | 12   | 13     | 30        | 55      | . .      | 12       |
| 29 . . . . .         | 27      | . . .    | 55    | 17    | 45   | 120   | 22   | 17     | 35        | 23      | 12       | 22       |
| 30 . . . . .         | 27      | . . .    | 40    | 430   | 45   | 600   | 22   | 17     | 45        | 12      | 4        | 12       |
| 31 . . . . .         | 28      | . . .    | 35    | . . . | 28   | . . . | 12   | 35     | . .       | . . .   | . . .    | 7        |
| Ave for month .      | 75      | 80       | 40    | 106   | 54   | 272   | 89   | 26     | 46        | 39      | 11       | 84       |

\* Sudden increase of turbidity due to action of local rains on clay bank.

TABLE II.

*Number of Bacteria per Cubic Centimeter in Water of James River at Richmond, Va., During 1909.*

| DAY OF<br>MONTH<br>1909 | January | February | March | April | May   | June  | July | August | September | October | November | December |
|-------------------------|---------|----------|-------|-------|-------|-------|------|--------|-----------|---------|----------|----------|
| 1 . . . . .             | 800     | 900      | 820   | 900   | 300   | 1,100 | 280  | 110    | 190       | 200     |          |          |
| 2 . . . . .             | 1,040   | 450      | 780   | 550   | 500   | 900   | 110  | 300    | 130       | 130     |          |          |
| 3 . . . . .             | 750     | 1,000    | 580   | 1,000 | 900   | 400   | 300  | 150    | 110       |         |          |          |
| 4 . . . . .             | 6,300   | 500      | 9,000 | 500   | 900   | 320   | 350  | 140    | 1,000     | 140     |          |          |
| 5 . . . . .             | 4,000   | 600      | 1,750 | 600   | 700   | 220   | 350  | 350    | 1,000     | 140     |          |          |
| 6 . . . . .             | 3,000   | 650      | 1 200 | 450   | 450   | 700   | 220  | 350    | 1,000     | 140     |          |          |
| 7 . . . . .             | 11,000  | 270      | 1,200 | 320   | 90    | 600   | 370  | 260    |           |         |          |          |
| 8 . . . . .             | 1,400   | 1,300    | 560   | 400   | 540   | 400   | 350  | 220    | 400       | 200     |          |          |
| 9 . . . . .             | 9 500   | 850      | 140   | 700   | 350   | 1,400 | 430  | 1,600  |           |         |          |          |
| 10 . . . . .            | 1 000   | 450      | 400   | 500   | 320   | 140   | 900  | 240    |           |         |          |          |
| 11 . . . . .            | 1,250   | 1,200    | 1,000 | 1,250 | 180   | 400   | 450  | 140    |           |         |          |          |
| 12 . . . . .            | 1,250   | 8,000    | 420   | 340   | 1,320 | 220   | 180  | 220    |           |         |          |          |
| 13 . . . . .            | 1,600   | 6,000    | 540   | 450   | 130   | 280   | 190  | 800    | 160       | 1,000   |          |          |
| 14 . . . . .            | 1,900   | 1,200    | 540   | 8,000 | 460   | 900   | 340  | 450    | 180       | 980     |          |          |
| 15 . . . . .            | 980     | 600      | 340   | 1,000 | 590   | 400   | 120  | 160    | 160       | 4,000   |          |          |
| 16 . . . . .            | 1,150   | 1,200    | 540   | 8,000 | 460   | 900   | 340  | 450    | 180       | 980     |          |          |
| 17 . . . . .            | 1,000   | 500      | 8,000 | 590   | 400   | 120   | 160  | 160    | 160       | 4,000   |          |          |
| 18 . . . . .            | 1,650   | 800      | 360   | 750   | 280   | 120   | 360  | 290    | 32,400    |         |          |          |
| 19 . . . . .            | 1,050   | 340      | 1,600 | 170   | 950   | 480   | 160  | 190    | 290       |         |          |          |
| 20 . . . . .            | 1,150   | 1,000    | 460   | 1,600 | 110   | 230   | 140  | 300    | 240       | 3,000   |          |          |
| 21 . . . . .            | 750     | 1,200    | 850   | 100   | 290   |       |      |        |           | 3,000   |          |          |
| 22 . . . . .            | 700     | 840      | 850   | 1,250 | 430   | 340   | 340  | 240    | 22,000    |         |          |          |
| 23 . . . . .            | 3,000   | 800      | 650   | 160   | 350   | 250   | 270  | 7,000  |           |         |          |          |
| 24 . . . . .            | 1,350   | 980      | 700   | 1,200 | 75    | 220   | 230  | 250    |           |         |          |          |
| 25 . . . . .            | 850     | 2,000    | 750   | 700   | 100   | 300   | 180  | 5,000  |           |         |          |          |
| 26 . . . . .            | 2,000   | 1,050    | 700   | 560   | 100   | 250   | 280  | 10,000 |           |         |          |          |
| 27 . . . . .            | 760     | 1,450    | 1,700 | 680   | 115   | 100   | 110  | 300    | 230       | 3,500   |          |          |
| 28 . . . . .            | 750     | 300      | 700   | 400   | 80    | 180   | 110  | 500    | 3,300     |         |          |          |
| 29 . . . . .            | 340     | 2,000    | 310   | 750   | 160   | 250   | 120  | 700    |           |         |          |          |
| 30 . . . . .            | 570     | 1,200    | 1,000 | 800   | 820   | 120   | 100  |        |           |         |          |          |
| 31 . . . . .            | 800     |          |       |       |       | 120   | 280  |        |           |         |          |          |
| Ave. for month .        | 2,355   | 1,679    | 1,200 | 1,336 | 686   | 758   | 401  | 283    | 392       | 256     | 366      | 4,629    |

TABLE III.

*Monthly Average of Turbidity, Color, Alkalinity and Bacteria in the James River at Richmond, Va., During 1909.*

| MONTH 1909                 | Turbidity | Color | Alkalinity | Bacteria<br>per c. c. |
|----------------------------|-----------|-------|------------|-----------------------|
| January . . . . .          | 75        | 28    | 36         | 2,355                 |
| February . . . . .         | 80        | 29    | 38         | 1,679                 |
| March . . . . .            | 40        | 30    | 35         | 1,200                 |
| April . . . . .            | 106       | 26    | 39         | 1,336                 |
| May . . . . .              | 54        | 22    | 39         | 686                   |
| June . . . . .             | 272       | 27    | 38         | 758                   |
| July . . . . .             | 89        | 29    | 57         | 401                   |
| August . . . . .           | 26        | 28    | 61         | 233                   |
| September . . . . .        | 46        | 41    | 60         | 392                   |
| October . . . . .          | 39        | 43    | 63         | 256                   |
| November . . . . .         | 11        | 50    | 64         | 366                   |
| December . . . . .         | 84        | 44    | 50         | 4 629                 |
| Average for year . . . . . | 76        | 33    | 48         | 1,190                 |

TABLE IV.

*Daily Turbidity (Silica Scale, Parts per Million) of Canal Water at Richmond, Va., During 1909.*

| DAY OF MONTH<br>1909 | January | February | March | April | May | June | July | August | September | October | November | December |
|----------------------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|
| 1 . . . . .          | ...     | 23       | 28    | 18    | 150 | 30   | 190  | ...    | 30        | 35      | 12       | 2        |
| 2 . . . . .          | 100     | 18       | 25    | 18    |     | 85   | 390  | 25     | 27        | 35      | 22       | 2        |
| 3 . . . . .          | ...     | 18       | 17    | 18    | 28  | 390  | 250  | 31     | 27        | 28      | 18       | 1        |
| 4 . . . . .          | 95      | 12       | 290   | ...   | 85  | 390  | ...  | 35     | 29        | 22      | 12       | 1        |
| 5 . . . . .          | 55      | 12       | 45    | 17    | 35  | 250  | 190  | 95     | ...       | 14      | 12       | 2        |
| 6 . . . . .          | 190     | 23       | 28    | 18    | 28  | ...  | 170  | 55     | ...       | 17      | 12       | 2        |
| 7 . . . . .          | 140     | ...      | ...   | 18    | 23  | 270  | 130  | 45     | 22        | 12      | 12       | 3        |
| 8 . . . . .          | 140     | 12       | 28    | 17    | 23  | 135  | 110  | ...    | 23        | 12      | 16       | 2        |
| 9 . . . . .          | 180     | 12       | 23    | 13    | ... | 140  | 210  | 30     | 22        | 12      | 12       | 2        |
| 10 . . . . .         | ...     | 85       | 23    | 12    | 23  | 85   | 140  | 22     | 65        | 35      | 7        | 2        |
| 11 . . . . .         | 45      | 65       | 23    | ...   | 18  | 220  | ...  | 30     | 18        | 17      | 7        | 2        |
| 12 . . . . .         | 35      | 150      | 23    | 8     | 18  | 140  | 75   | 30     | 170       | 12      | 7        | 3        |
| 13 . . . . .         | 18      | 190      | 23    | 12    | 30  | ...  | 35   | 80     | 150       | 12      | 7        | 2        |
| 14 . . . . .         | 18      | ...      | ...   | 65    | 22  | 360  | 30   | 28     | 130       | 30      | 7        | 55       |
| 15 . . . . .         | 12      | 95       | 18    | 26)   | 55  | 280  | 28   | ...    | 45        | 65      | 7        | 370      |
| 16 . . . . .         | 12      | 100      | 18    | 520   | ... | 150  | 23   | 22     | 21        | 135     | 7        | 460      |
| 17 . . . . .         | ...     | 28       | 18    | 360   | 22  | 180  | 28   | 22     | 22        | 65      | 12       | 280      |
| 18 . . . . .         | 23      | 28       | 13    | ...   | 17  | 160  | ...  | 22     | 45        | 55      | 12       | 180      |
| 19 . . . . .         | ...     | 20       | 13    | 100   | 17  | 450  | 23   | 30     | 45        | 55      | 12       | 130      |
| 20 . . . . .         | 35      | 25       | 17    | 45    | 28  | ...  | 28   | 35     | 65        | 55      | 12       | 130      |
| 21 . . . . .         | 28      | ...      | ...   | 35    | 18  | 280  | 22   | 55     | 35        | 55      | 12       | 130      |
| 22 . . . . .         | 23      | ...      | 12    | 28    | 23  | 250  | 22   | ...    | 65        | 45      | 7        | 110      |
| 23 . . . . .         | 23      | 100      | 12    | 27    | ... | 220  | 18   | 30     | 45        | 28      | 3        | ...      |
| 24 . . . . .         | ...     | 85       | 17    | 28    | 170 | 430  | 28   | 22     | 28        | 28      | 14       | ...      |
| 25 . . . . .         | 28      | 75       | 23    | ...   | 105 | 190  | ...  | 27     | 22        | 18      | 12       | ...      |
| 26 . . . . .         | 28      | 65       | 75    | 28    | 45  | 125  | 17   | 17     | 22        | 18      | 10       | ...      |
| 27 . . . . .         | 28      | 55       | 110   | 22    | 35  | ...  | 17   | 17     | 35        | 18      | 7        | 15       |
| 28 . . . . .         | 28      | ...      | ...   | 18    | 45  | 75   | 17   | 14     | 30        | 18      | 8        | ...      |
| 29 . . . . .         | 23      | ...      | 45    | 19    | 35  | 180  | 22   | ...    | 35        | 18      | 3        | ...      |
| 30 . . . . .         | 27      | ...      | 35    | 28    | ... | 680  | 22   | 35     | 35        | 16      | 2        | ...      |
| 31 . . . . .         | ...     | ...      | 30    | ...   | 28  | ...  | 17   | 85     | ...       | 12      | ...      | ...      |
| Ave. for month .     | 55      | 56       | 38    | 67    | 43  | 233  | 73   | 33     | 46        | 32      | 10       | 82       |

TABLE V.

*Number of Bacteria per Cubic Centimeter in Canal Water at Richmond, Va., During 1909.*

| DAY OF MONTH   | January | February | March | April | May   | June  | July | August | September | October | November | December |
|----------------|---------|----------|-------|-------|-------|-------|------|--------|-----------|---------|----------|----------|
| 1              |         | 700      | 1,000 | 500   | 750   | 260   | 650  |        | 200       | 80      | 90       | 130      |
| 2              | 650     | 400      | 500   | 400   | ...   | 500   | 600  | 60     | 160       | 80      | ...      | 100      |
| 3              |         | 750      | 900   | ...   | 640   | 700   | 500  | 300    | 150       | ...     | 120      | 220      |
| 4              | 5,000   | 330      | 8,600 | ...   | 700   | 1,700 | ...  | 200    | 170       | 150     | 500      | 120      |
| 5              | 2,200   | 350      | 1,200 |       | ...   | 1,100 | ...  | 400    | ...       | 150     | 160      | ...      |
| 6              | 3,500   | 550      | 1,300 | ...   |       | ...   | 500  | ...    |           | ...     | 100      | 150      |
| 7              | 4,500   |          | ...   | 280   | ...   | 700   | 250  | 80     | 180       | 130     | ...      | 100      |
| 8              |         | 1,300    | 490   | 270   | ...   | 450   | 370  | ...    | 190       | 220     | 800      | 220      |
| 9              | 6,500   | 950      |       | 320   | ...   | 500   | 400  | ...    | 110       | ...     | 230      | 80       |
| 10             |         | 750      |       | 320   | 400   | 600   | 220  | 190    | 2,150     | ...     | ...      | 80       |
| 11             | 600     | 900      | 9.0   | ...   | ...   | 1,500 | ...  | 60     | 300       | ...     | 160      | 140      |
| 12             | 1,000   | ...      | 420   | 240   | ...   | 1,100 | 160  | 50     | ...       | ...     | 150      | ...      |
| 13             | 1,150   | 5,000    | 480   | 200   | 180   | ...   | 130  | 60     | 700       |         | 250      | 190      |
| 14             | 1,450   | ...      | ...   | ...   |       | 920   | ...  | 130    | 200       | 200     | ...      | 2,350    |
| 15             | 900     | ...      | 600   | ...   | 560   | 930   | ...  |        | 140       | 320     | 210      | 14,000   |
| 16             | 1,100   | 1,100    | 460   | 9,000 |       | 340   | 150  | 170    | ...       | 400     | 160      | 1,000    |
| 17             |         | 1,120    | 520   | 8,000 | ...   | 550   | 70   | 130    | 230       |         | 220      | 4,400    |
| 18             | 800     | 900      | 480   | ...   | ...   | 900   | ...  | 200    | 440       | 200     | 180      | 25,000   |
| 19             |         | 1,200    | 200   | 1,100 | 160   | 850   | 140  | 90     |           | 170     | 140      | ...      |
| 20             | 1,250   | 730      | 240   | 1,000 | 140   | ...   | 180  | 120    | 620       | ...     | 70       | 1,250    |
| 21             | 600     | ...      | ...   | 1,600 | 220   | 700   | 46   | 150    | ...       | ...     |          | 1,600    |
| 22             | 750     | ...      | 640   | 600   | 500   | ...   | 120  | ...    | 280       | 250     | 120      | 22,000   |
| 23             |         | 2,000    | 400   | 600   | ...   | ...   | 55   | 300    | 130       | 250     | ...      | ...      |
| 24             |         | 1,900    | 750   | 650   | 1,000 | ...   | 50   | 100    | 210       |         | 180      | ...      |
| 25             | 800     | 1,300    | 900   | ...   | 800   |       | ...  | 220    | ...       | 120     | ...      | ...      |
| 26             | 1,350   | 1,500    | 1,110 | 500   | 740   | ...   | 65   | 140    |           | 300     | 550      |          |
| 27             | 700     | 1,300    | 1,300 | 450   | 1,200 |       | 42   | 75     | 110       | 170     | 400      | 3,500    |
| 28             | 430     | ...      |       | 450   | 1,200 | 330   | 55   | 140    | 120       | 120     | ...      | ...      |
| 29             |         |          | 1,600 | 400   | 750   | 100   | ...  |        | 140       | 380     | 200      | ...      |
| 30             | 600     | ...      | 850   | 500   | ...   | ...   | 750  | 250    | 90        | 1,200   | 450      | ...      |
| 31             |         |          | 900   |       | ...   |       | 80   | 340    | ...       |         |          | ...      |
| Ave. for month | 166     | 1,079    | 1,069 | 1,018 | 621   | 736   | 242  | 164    | 312       | 257     | 247      | 4,028    |

TABLE VI.

*Monthly Averages of the Canal at Richmond, Va., During 1909.*

| MONTH, 1909                | Turbidity | Alkalinity | Bacteria<br>per c. c. |
|----------------------------|-----------|------------|-----------------------|
| January . . . . .          | 55        | 32         | 166                   |
| February . . . . .         | 56        | 33         | 1,079                 |
| March . . . . .            | 38        | 31         | 1,069                 |
| April . . . . .            | 67        | 36         | 1,018                 |
| May . . . . .              | 43        | 39         | 621                   |
| June . . . . .             | 238       | 35         | 736                   |
| July . . . . .             | 73        | 57         | 242                   |
| August . . . . .           | 33        | 59         | 164                   |
| September . . . . .        | 46        | 59         | 312                   |
| October . . . . .          | 32        | 60         | 257                   |
| November . . . . .         | 10        | 62         | 247                   |
| December . . . . .         | 82        | 53         | 4,028                 |
| Average for year . . . . . | 64        | 72         | 828                   |



## TURBIDITY.

Reviewing table I shows a year of unusual clear water. From the first of the year until June there were a few days of turbid water. During the early summer the water was muddy. Starting about the middle of July and continuing until near time the Settling Basins were put into operation, the river water was clearer than it had been for the corresponding period since the establishing of the laboratory in 1904.

As usual the most turbid water was in the summer, the main difference being that August last year was among the clearer months.

The canal water was correspondingly clear during the year.

## BACTERIA.

The bacteria count of the river water ranged from 5 per cubic centimeter in July to 32,400 per cubic centimeter in December. The yearly bacterial average, like the turbidity average, was the lowest recorded in the laboratory.

The bacteria average of the canal water was lower than the average bacteria of the river water or any yearly average previously recorded.

As mentioned in other annual reports of the laboratory, the highest bacteria counts occur in the winter.

Color and alkalinity were higher than in preceding years.

## CANAL WATERSHED.

A partial inspection of the portion of the canal watershed below the feeder at Boshers' dam was made during the month of May.

In April I recommended that this be done and it was ordered by the Committee on Water at their next meeting. A full report of the investigation was made to the Superintendent May 31st.

This report mentioned that Mr. C. E. Bolling, formerly Superintendent of the Water Department, and Dr. E. C. Levy, Chief Health Officer, had previously pointed out the danger of contamination to our water from this watershed. The laboratory report for 1907 described the watershed and discussed the quality of the water from the creeks that drain it.

Studies on the typhoid fever problem by the Chief Health Officer, Dr. E. C. Levy, and his medical inspector in 1908, Dr. A. W. Freeman, made it evident that we should be familiar in detail with conditions on the local watershed, thus placing ourselves in a position to know how to proceed for our protection.

The watershed of the creeks which drain into the canal below Boshers' dam is about 87.5 square miles in area.

This inspection covers about one-half this area.

Wells and springs supply water to most inhabitants of the watershed.

Privies and stables are badly located, in many incidents draining directly into creeks or ditches which empty into the canal. Some places were found where there are no privies, the "bush habit" prevailing.



About 1,400 people live on the portion of the watershed inspected. There was found no case of illness of a kind recognized as likely to endanger our water supply. Several cases of typhoid fever were reported the year previous, at which time every precaution was taken to protect our water supply.

The full report gives detail figures covering all these points and special incidents of each case. Attention was given to settlements on the watershed. Carbon Hill, where the coal mines are being reopened was carefully inspected. Conditions there were found to be fairly satisfactory. Mention was made of the chance of pollution to the canal and Settling Basins by the Chesapeake and Ohio railroad running by the water supply. Recommendations covering this were made.

The charter of Richmond provided power for us to pass ordinances controlling an area 15 miles above Richmond.

The report concluded by urging the adoption of such an ordinance and pointing out that though the basins would soon be in operation; if at a future time they were suspended for a few days, and we had to return to the canal for water, it would probably be little more than an open sewer.

On July 16, 1910, an ordinance drafted by Dr. E. C. Levy, who had given me much valuable assistance on this work, completely protecting the watershed in every detail, was adopted.

During the Fall this ordinance with regulations covering the erection of privies and septic tanks and a letter explaining all, was mailed to every household, or where possible, to land owners on the watershed.

#### SETTLING BASINS.

The Settling Basins were put into operation on December 22, 1909.

About twice the contents of the conduit was passed through it, and wasted before pumping commenced.

Stored water, taken from the river early in December, while it was clear, was first supplied the city. This water was not coagulated.

Some slight repairs became necessary when the coagulating plant was about to be put into operation. By the first of the year the machinery was all in good order.

On account of the delay in using the coagulating plant, water with a turbidity around 18 was supplied the city for several days.

The next laboratory report will contain complete information concerning the Settling Basins.

The plant for flushing out the coagulating basins is now being installed. Some time will elapse before this is completed. A heavy deposit of mud is now on the floor of these basins. It is possible that this mud deposit may become so heavy before we are able to remove it that it may interfere with clearing the water.

In a letter to the superintendent written late in December a list of necessary supplies for the year was given. I recommended that the North bank of the feeder be rip-rapped, as it is being badly washed, and that the floor of the feeder be graded, so it can be drained. Almost every gate on the whole plant leaks. This leakage seriously interferes with the operation of the basins under some conditions and is liable at times to cause us much

trouble. These gates should be made tight or new ones installed. For the protection of the gates and men that turn them, gate houses should be erected over the gates at the dam and over the gates at the head of the basins and a house built over the lower end of the basins, known as the "wells" for the protection of the gates and men, as this is a very dangerous place where work must be done. The new storage house and hoist now under consideration will greatly aid in handling the alum.

During the past year the dirt banks of the Settling Basins were put into good repair, a fence built across the middle wall from bank to bank, a house erected around the coagulating tanks, a water closet put in the laboratory and necessary sewerage for this and flushing the tanks was installed.

#### SULPHITE WASTE.

The waste from the sulphite mills continue to color our water. To remove this color it will be necessary to use a coagulant at times when we would not have to do so. In round numbers this will frequently cost Richmond \$50.00 a day for clear water, when we could, but for this coloring, draw clear water from the river. This sulphite problem is of great importance to Richmond and should be thoroughly investigated and measures taken to protect ourselves from this nuisance.

In concluding I wish to thank you for the many courtesies shown me during the year. I also wish to commend to you the men employed on the basins. They have cheerfully, faithfully and conscientiously discharged their duties at all times.

Respectfully yours,

EDWIN N. EZEKIEL,  
*Director of Laboratory.*

TABLE No. 1.

*Appropriations and Expenditures for the Year 1909.*

| ACCOUNTS   | Appropriations | Expended     | Balance      |
|--|----------------|--------------|--------------|
| Construction   | \$ 42,500 00   | \$ 42,346 95 | \$ 153 05    |
| Water Department Pay-Rolls   | 16,335 75      | 16,228 39    | 107 36       |
| Expense  | 11,950 00      | 1,918 00     | 32 00        |
| New Reservoir  | 2,320 00       | 2 279 70     | 40 30        |
| Marshall Reservoir   | 11,570 00      | 1,505 39     | 64 61        |
| Water Meters   | 10,000 00      | 9,999 66     | 34           |
| Settling Basins and Laboratory   | 10,000 00      | 6,908 46     | 3,091 54     |
| Pump Houses  | 25,000 00      | * 23,602 95  | 1,397 05     |
| Annexed Territory  | 3,159 12       | 3,159 12     |              |
| Establishment and Installation of Electric Pump Machinery; balance brought forward from 1908 | 86,186 38      | 58,302 26    | 27,884 12    |
| Construction of Flume  | 62,000 00      | 60,209 89    | 1,790 11     |
| Construction of Water Mains and House Connections (bond issue)                               | 210,000 00     | 20,148 93    | 189,851 07   |
| Total  | \$471,021 25   | \$246,609 70 | \$224,411 55 |

†Amount appropriated to credit of Expense Account includes \$150.00 transferred from Marshall Reservoir appropriations

\*Includes \$40.00, due C. & O. Railway Company, ordered paid 1n 1908, but not collected or charged until 1909.

*Receipts of the Water Works from January 1, 1909, to January 1, 1910.*

|   |              |                     |
|---|--------------|---------------------|
| Water rents   | \$201,526 08 |                     |
| Fractional bills  | 5,851 27     |                     |
| Builders' permits   | 752 82       |                     |
| Receipts of Water Works—Sale of scrap, etc                                    | 1,922 57     |                     |
| Delinquent meter bills  | 970 32       |                     |
|   |              | \$211,023 06        |
| Refunded bills  |              | 611 78              |
|   |              | <u>\$210,411 28</u> |
| Receipts  | \$210,411 28 |                     |
| Value of water used by city not included in above                             | 27,292 89    |                     |
| Water given to charity, churches, &c  | 3,515 87     |                     |
|   |              | \$241,220 04        |
| Amount, including additions expended from January 1, 1909, to January 1, 1910 |              | 246,609 70          |
| Deficit   |              | <u>\$ 5,389 66</u>  |
| Water rents include \$8,515.27 paid by city departments.                      |              |                     |

## APPENDIX

|   |                    |
|---|--------------------|
| To amount appropriated under ordinances approved January 21, 1907, and October 17, 1908, for water mains and house connections in Annexed Territory | \$54,286 83        |
| To amounts disbursed for water mains and house connections in Annexed Territory, as follows:  |                    |
| Clay Ward   | \$32,096 20        |
| Marshall Ward   | 16,787 76          |
| Lee Ward  | 1,554 00           |
| Jefferson Ward  | 3,848 87           |
|   | <u>\$54,286 83</u> |

TABLE No. 2 (REVISED FROM 1885 TO 1910).

*Receipts, Appropriations and Disbursements from January, 1885 to January, 1910.*

| YEAR           | Receipts       | Appropriations | Expended from Appropriations | Expended for Maintenance | Additions for Works |
|----------------|----------------|----------------|------------------------------|--------------------------|---------------------|
| 1885 . . . . . | \$ 98,632 45   | \$ 75,979 39   | \$ 74,215 65                 | \$ 38 373 79             | \$ 35,841 86        |
| 1886 . . . . . | 104,805 90     | 74,633 25      | 72,059 79                    | 41,562 48                | 30,497 31           |
| 1887 . . . . . | 111,024 17     | 58,000 00      | 57,989 19                    | 30,496 78                | 27,492 41           |
| 1888 . . . . . | 116,998 61     | 60,700 00      | 60,697 59                    | 36,379 86                | 24,317 73           |
| 1889 . . . . . | 114,696 87     | 47,200 00      | 47,200 00                    | 33,902 06                | 13,297 94           |
| 1890 . . . . . | 126,111 21     | 70,841 25      | 68,541 03                    | 35 602 47                | 32,938 56           |
| 1891 . . . . . | 134,857 49     | 58 713 70      | 58,706 83                    | 43,607 16                | 14,999 67           |
| 1892 . . . . . | 141,811 03     | 51,691 25      | 51,691 25                    | 39 280 42                | 12,410 83           |
| 1893 . . . . . | 143,868 34     | 56,841 25      | 56 821 25                    | 46 318 03                | 10,503 22           |
| 1894 . . . . . | 139,034 19     | 52,540 00      | 52,538 66                    | 41,691 14                | 10,947 52           |
| 1895 . . . . . | 139,406 66     | 54,740 00      | 49,709 59                    | 41,974 93                | 7,734 66            |
| 1896 . . . . . | 139 533 28     | 52,800 00      | 52 065 45                    | 46 683 15                | 5,382 30            |
| 1897 . . . . . | 135,272 24     | 61,750 00      | 58,963 13                    | 41,411 82                | 17,551 31           |
| 1898 . . . . . | 134 944 63     | 48,050 00      | 46,780 90                    | 34,449 07                | 12,331 83           |
| 1899 . . . . . | 142,370 28     | 49,100 00      | 44 827 73                    | 36 884 35                | 7,943 38            |
| 1900 . . . . . | 146,928 95     | 56,899 71      | 54,067 79                    | 42,762 13                | 11,305 66           |
| 1901 . . . . . | 153,074 21     | 65 567 96      | 62,855 73                    | 35 382 46                | 27 473 27           |
| 1902 . . . . . | 157,835 61     | 123,517 21     | 118 404 77                   | 36,744 50                | 81,660 27           |
| 1903 . . . . . | 162,120 28     | 76 768 50      | 71,444 98                    | 38,184 78                | *33,460 20          |
| 1904 . . . . . | 167,068 80     | 78,385 00      | 76,475 80                    | 43,638 49                | 32,837 31           |
| 1905 . . . . . | 174,690 80     | 77,575 00      | 73,084 15                    | 45 058 93                | 28,025 22           |
| 1906 . . . . . | 190,033 44     | 74,534 65      | 71,998 88                    | 45,242 35                | 26 756 48           |
| 1907 . . . . . | 197,402 91     | 132,991 23     | 119,712 75                   | 50,082 60                | 69 630 15           |
| 1908 . . . . . | 203,280 54     | 179,602 44     | 159,233 10                   | 68,221 14                | 91,011 96           |
| 1909 . . . . . | 210,411 28     | 471,021 25     | 246 609 70                   | 62,468 16                | 184,141 54          |
| Total . . . .  | \$3,686,214 17 | \$2,210,443 04 | \$1,906,795 64               | \$1,056,303 05           | \$850,492 39        |

NOTE.—Included in additions is stock on hand purchased in 1909 amounting to \$17,471.89.

## RECAPITULATION.

|   |                |                |
|---|----------------|----------------|
| Total amount received from October 7, 1830, to January 1, 1885  | \$1,977,599 22 |                |
| Total amount received from January 1, 1885, to January 1, 1910  | 3,686,214 17   |                |
|   |                | \$5,663,813 39 |
| Total amount disbursed from October 7, 1830, to January 1, 1885 | \$3,001,196 81 |                |
| Total amount disbursed from January 1, 1885, to January 1, 1910 | 1,906,795 64   |                |
|   |                | \$4,907 992 45 |
| Credit balance January, 1910 . . . . .                          |                | \$755,820 94   |

TABLE No. 3.

*Number of Gallons of Water Pumped in the Reservoir from January 1, 1909, to January 1, 1910.*

| MONTHS              | GALLONS PUMPED BY |               |             |                   | Total         | AVERAGE NUMBER OF GALLONS PER DAY PUMPED BY |            |             |                   | Total      |
|---------------------|-------------------|---------------|-------------|-------------------|---------------|---|------------|-------------|-------------------|------------|
|                     | Old Pumps         | New Pumps     | Steam Pump  | Centrifugal Pumps |               | Old Pumps                                   | New Pumps  | Steam Pumps | Centrifugal Pumps |            |
|                     |                   |               |             |                   |               |   |            |             |                   |            |
| January . . . . .   | 107,949,254       | 272,885,312   | . . . . .   | . . . . .         | 380,834,566   | 3,482,234                                   | 8,802,752  | . . . . .   | . . . . .         | 12,284,896 |
| February . . . . .  | 93,768,500        | 243,782,336   | . . . . .   | . . . . .         | 337,550,836   | 3,348,875                                   | 8,706,512  | . . . . .   | . . . . .         | 12,055,387 |
| March . . . . .     | 102,604,370       | 249,415,584   | . . . . .   | . . . . .         | 352,019,904   | 3,309,817                                   | 8,045,664  | . . . . .   | . . . . .         | 11,355,481 |
| April . . . . .     | 149,862,210       | 185,367,200   | 14,250,000  | . . . . .         | 359,479,410   | 4,995,407                                   | 6,512,240  | 475,000     | . . . . .         | 11,982,647 |
| May . . . . .       | 189,447,208       | 180,985,360   | 11,250,000  | . . . . .         | 381,732,568   | 6,112,168                                   | 5,838,560  | 382,904     | . . . . .         | 12,313,532 |
| June . . . . .      | 173,682,160       | 188,630,400   | 12,000,000  | 3,426,810         | 377,739,370   | 5,788,402                                   | 6,287,680  | 400,000     | 114,227           | 12,501,309 |
| July . . . . .      | 127,409,680       | 287,465,440   | . . . . .   | 15,865,211        | 410,740,341   | 4,109,990                                   | 8,674,917  | . . . . .   | 511,781           | 13,249,688 |
| August . . . . .    | . . . . .         | 306,299,840   | . . . . .   | 68,900,427        | 375,210,267   | . . . . .                                   | 9,880,040  | . . . . .   | 2,222,917         | 12,103,587 |
| September . . . . . | . . . . .         | 321,441,600   | 48,750,000  | 63,084,410        | 433,700,010   | . . . . .                                   | 10,714,720 | 1,625,000   | 2,116,947         | 14,466,667 |
| October . . . . .   | . . . . .         | 304,907,568   | 11,500,008  | 6,591,009         | 331,998,585   | . . . . .                                   | 9,835,728  | 370,968     | 2,115,839         | 12,322,585 |
| November . . . . .  | . . . . .         | 298,016,160   | . . . . .   | 48,646,410        | 346,662,570   | . . . . .                                   | 9,933,872  | . . . . .   | 1,621,547         | 11,555,419 |
| December . . . . .  | . . . . .         | 307,095,641   | 22,750,001  | 85,810,418        | 415,656,060   | . . . . .                                   | 9,906,311  | 73,871      | 2,768,078         | 13,408,260 |
| Total . . . . .     | 944,753,242       | 3,136,302,441 | 120,500,033 | 351,758,695       | 4,563,314,411 | 2,538,365                                   | 8,592,609  | 330,137     | 963,722           | 12,474,842 |

Cost of pumping, per million gallons, at Old Pump House, \$3.02; at New House, \$3.72; at Steam Pump, \$17.42; at Centrifugal Pumps, \$6.09.

Average cost per million, \$4.12.



TABLE No. 3—CONTINUED.  
*Number of Gallons Pumped by Electric-Motor from New Reservoir to Stand Pipe in 1909.*

| MONTHS              | Gallons<br>Per Month | Average Gallons<br>Per Day | Average Hours<br>Per Day |   |
|---------------------|----------------------|----------------------------|--------------------------|---|
| January . . . . .   | 18,250.010           | 588,710                    | 4.905                    | Total cost of Electric Plant, \$119,806.48.<br>Cost of operation for 1909, \$4,794.93.<br>Cost of pumping from New Reservoir to Stand Pipe, including interest and depreciation, \$39.23 per million gallons; excluding interest and depreciation, \$16.52 per million gallons. |
| February . . . . .  | 17,420.004           | 622,143                    | 5.184                    |   |
| March . . . . .     | 22,100.024           | 712,904                    | 5.941                    |   |
| April . . . . .     | 23,820.060           | 794,000                    | 6.616                    |   |
| May . . . . .       | 22,440.061           | 723,871                    | 6.032                    |   |
| June . . . . .      | 29,560.020           | 985,334                    | 8.211                    |   |
| July . . . . .      | 24,825.017           | 800,807                    | 6.673                    |   |
| August . . . . .    | 22,753.969           | 733,999                    | 6.116                    |   |
| September . . . . . | 24,180.000           | 806,000                    | 6.716                    |   |
| October . . . . .   | 23,760.012           | 766,452                    | 6.387                    |   |
| November . . . . .  | 27,364.020           | 912,134                    | 7.601                    |   |
| December . . . . .  | 33,200.008           | 1,070,968                  | 8.924                    |   |
| Total . . . . .     | 289,673.085          | 793,624.89                 | 6.608                    |   |

TABLE No. 4.

*Street Mains Laid in 1909.*

| LOCATION   | Length<br>in Feet | Size<br>in Inches | Gate<br>Valves | Fire<br>Hydrants | Cost     |
|--|-------------------|-------------------|----------------|------------------|----------|
| Ashland street, opposite southeast corner of New Reservoir .....                               | .....             | .....             | 1              | 1                | \$362 02 |
| Nicholson and Fifth streets, northeast corner.....   | .....             | .....             | .....          | 1                | 46 28    |
| Hermitage road, west side, 100 feet south of railroad bridge .....                             | .....             | .....             | .....          | 1                | 65 80    |
| Williamsburg avenue between Orleans and Virginia streets .....                                 | 144               | 6                 | .....          | 1                | 135 30   |
| Nineteenth street between Main and Cary streets (United States Tobacco Co., private line)..... | 830               | 8                 | .....          | .....            | 21 74    |
| Gilliam street from Nicholson to Louisiana street.   | 15                | 6                 | 2              | .....            | 760 71   |
| Louisiana street between Williamsburg avenue and Erin street .....                             | 507               | 8                 | .....          | 1                | 538 25   |
| Federal and Fifth streets .....  | .....             | .....             | .....          | 1                | 30 42    |
| Fifteenth street between Main and Cary streets (Kingan & Co., private line).....               | .....             | .....             | .....          | .....            | 14 30    |
| Twenty-second street between Main and Franklin streets (Surbrug Tobacco Co., private line).... | .....             | .....             | 1              | 1                | 16 00    |
| Cary and Strawberry streets.....   | 358               | 6                 | 1              | .....            | 65 83    |
| Claiborne street, east of Randolph street.....   | 104               | 4                 | 1              | .....            | 218 48   |
| Market Space between Sixth and Seventh streets.  | .....             | .....             | .....          | .....            | 94 46    |
| Jay street between Seventeenth and Buchanan Streets .....                                      | 368               | 6                 | 1              | .....            | 270 92   |
| Main and Foushee streets.....  | .....             | .....             | 1              | .....            | 125 62   |
| Hospital street between Second and Fifth streets.  | 933               | 8                 | 2              | .....            | 922 38   |
| Jackson and Second streets.....  | .....             | .....             | 1              | 1                | 71 55    |
| Park avenue between Robinson and West streets.   | 2,059             | 6                 | 2              | 3                | 1,368 88 |
| Robinson street between Main and Cary streets...   | 460               | 8                 | 1              | .....            | 399 72   |
| Robinson street between Grove and Floyd avenues.   | 268               | 6                 | 1              | .....            | 168 08   |
| Dance street between Harrison and Dobson streets.  | 378               | 6                 | .....          | 1                | 244 66   |
| Thirty-fifth street between Clay and Marshall streets .....                                    | 252               | 8                 | .....          | .....            | 208 88   |
| Thirty-fifth street, south of Marshall street.....   | 204               | 4                 | 1              | .....            | 95 90    |
| William street between Gilmer and Graham streets .....   | 300               | 6                 | 1              | .....            | 193 33   |
| Boyd street between Harrison and Kinney streets.   | 710               | 6                 | 2              | 2                | 489 39   |
| Brown street, west of Fifteenth street.....  | 81                | 4                 | 1              | .....            | 43 98    |
| Twenty-seventh street between Broad and Clay streets .....                                     | 823               | 12                | 6              | .....            | 1,298 21 |
| Graham street between Broad and Leich streets...   | 1,250             | 12                | 7              | .....            | 2,022 17 |
| Broad street between Boulevard and Alley, west.  | 204               | 6                 | 1              | .....            | 84 14    |
| Alley, west of Boulevard, south of Broad street...   | 188               | 6                 | .....          | .....            | 162 66   |
| Kensington street between Elm and Cedar streets.   | 410               | 6                 | 1              | .....            | 237 06   |
| Floyd avenue between Lombardy and Park streets.  | 924               | 12                | .....          | .....            | .....    |
| .....  | 50                | 8                 | .....          | .....            | .....    |
| .....  | 39                | 6                 | 1              | 2                | 1 399 37 |
| .....  | 301               | 6                 | .....          | .....            | 178 46   |
| Dobson street between Dance and Wallace streets.   | .....             | .....             | .....          | .....            | .....    |
| Clay street between Hermitage Road and Lodge street .....                                      | 778               | 6                 | 1              | 2                | 522 98   |
| Chaffin street, west of Randolph street.....   | 298               | 6                 | 1              | .....            | 184 40   |
| Washington street between Ashland and Jacquelin streets .....                                  | 438               | 10                | 2              | 1                | 685 34   |
| Ashland street opposite City Stables.....  | .....             | .....             | 1              | 1                | 91 75    |
| Sycamore street between Main and Cary streets...   | 408               | 6                 | 1              | .....            | 187 94   |
| Cary and Eighteenth streets (Virginia Bonded Warehouse Corporation, private line).....         | .....             | .....             | .....          | .....            | 16 14    |
| Twentieth street between T and U streets.....  | 405               | 6                 | 1              | 1                | 281 84   |
| Pleasants and Twenty-first streets.....  | .....             | .....             | .....          | 1                | 48 39    |
| Twenty-sixth street between Q and R streets.....   | 189               | 6                 | .....          | 1                | 130 82   |
| Louisiana and Seventh streets.....   | .....             | .....             | .....          | 1                | 53 39    |
| Main and Fifteenth streets.....  | .....             | .....             | 1              | 1                | 70 11    |
| Cary street from Boulevard to alley west of Boulevard .....                                    | 166               | 10                | 1              | 1                | 299 90   |
| Alley between Boulevard and Colonial avenue, south from Cary street.....                       | 910               | 6                 | 1              | 1                | 658 88   |
| Broad and Thirty-third streets (City Engineer Department, private line).....                   | .....             | .....             | .....          | .....            | 10 76    |



TABLE No. 4—CONTINUED.

*Street Mains Laid in 1909.*

| LOCATION   | Length<br>in Feet | Size<br>in Inches | Gate<br>Valves | Fire<br>Hydrants | Cost        |
|--|-------------------|-------------------|----------------|------------------|-------------|
| Marshall Reservoir, southeast corner.....  | 54                | 16                | 2              | ...              | 368 64      |
| Twenty-ninth street between M and N streets....  | 383               | 6                 | 1              | ...              | 240 72      |
| Allen avenue between Grove and Floyd avenues...  | 458               | 6                 | 1              | 1                | 500 21      |
| T street between Twenty-third and Twenty-fourth sts.   | 343               | 6                 | 1              | ...              | 220 02      |
| Shockoe Lane between Twelfth and Fourteenth<br>streets (Southern Manufacturing Co., private<br>line) ..... | ...               | ...               | ...            | ...              | 3 50        |
| Lombardy street between Moore street and corpora-<br>tion line .....                                       | 474               | 6                 | ...            | 1                | 293 48      |
| Alley between Laurel and Cherry streets and Holly<br>street and river .....                                | 350               | 4                 | 1              | ...              | 198 75      |
| Cherry street between alley and Riverside Park...  | 184               | 4                 | ...            | 1                | 103 84      |
| Broad street between Thirty-sixth and Thirty-<br>seventh streets .....                                     | 72                | 8                 | ...            | ...              | 59 05       |
| City Electric Plant .....  | 20                | 6                 | 1              | ...              | 39 05       |
| Leigh and Twenty-seventh streets, for waste.....   | 4                 | 6                 | 1              | ...              | 36 94       |
| Fifth street between Denny and Nicholson streets.  | 320               | 6                 | 1              | ...              | 216 20      |
| Cary street between Fourteenth and Fifteenth<br>streets .....  | ...               | ...               | 1              | 1                | 76 85       |
| Chaffin street, 250 feet between Randolph and Lady<br>streets .....  | 216               | 6                 | 1              | 1                | 39 16       |
| Buchanan street between Balding and Richard<br>streets .....   | 21                | 4                 | ...            | ...              | 143 48      |
| Denny and Fifth streets.....   | ...               | ...               | ...            | 1                | 40 31       |
| Alley between Jefferson Park Road and Pleasants<br>streets, west of Mosby street.....                      | 240               | 6                 | 1              | ...              | 155 52      |
| Alley between Addison and Cedar streets and Parl<br>and Monument avenues.....                              | 240               | 6                 | ...            | ...              | 159 06      |
| Winder street, east of Randolph street.....  | 400               | 6                 | 1              | 1                | 269 60      |
| Franklin street between Fifteenth and Union<br>streets (Seaboard Air Line Railway, private<br>line) .....  | 284               | 6                 | ...            | 1                | 10 64       |
| Deep Run street between Main and Cary streets...   | 408               | 6                 | 1              | 1                | 188 29      |
| Allen avenue between Main and Cary streets...  | ...               | ...               | ...            | 1                | 275 99      |
| Clay and Thirteenth streets.....   | 1,194             | 12                | ...            | 1                | 58 73       |
| Cary street between Sycamore and Park streets...   | 93                | 6                 | 2              | ...              | 1,813 15    |
| Elm street between Hanover and Grove avenues..   | 440               | 8                 | 1              | ...              | 389 96      |
| Seventh street, north of Hospital street (American<br>Locomotive Works, private line).....                 | ...               | ...               | ...            | ...              | ...         |
| Blair street from Randolph street, east.....   | 433               | 6                 | 1              | 1                | 283 49      |
| Beverly street between Harrison and Dobson<br>streets .....  | 48                | 4                 | ...            | 1                | 55 24       |
| Carrington street between Mosby and Eighteenth<br>streets .....  | 200               | 6                 | ...            | ...              | 120 60      |
| Main and Madison streets .....   | 607               | 10                | 1              | ...              | 66 30       |
| Lombardy street between Beverly and Cary streets.  | 167               | 6                 | 2              | 1                | 976 10      |
| M street between Thirty-first and Thirty-fourth<br>streets .....   | 26                | 8                 | ...            | ...              | ...         |
| Alley between Thirty-third and Thirty-fourth<br>streets and M and Leigh streets.....                       | 960               | 6                 | 2              | 3                | 691 78      |
| Marshall and Sixth streets, Blues Armory-Market.   | 60                | 6                 | ...            | ...              | 37 68       |
| Marshall and Sixth streets, Blues Armory-Market.   | 156               | 4                 | 1              | ...              | ...         |
| Marshall and Sixth streets, Blues Armory-Market.   | 42                | 4                 | ...            | 1                | 75 00       |
| Marshall and Sixth streets, Blues Armory-Market.   | 42                | 4                 | ...            | ...              | ...         |
|  | 24,751            |                   | 71             | 42               | \$28,646 17 |

Total number of taps made in 1909, 1,088; average cost including labor, tapping cock, stop cock, etc., \$5.39. 5,871 18

Total number of City meters set in 1909, 1,479; average cost including labor and box, \$12.15. 17,969 85

Total number of private meters set in 1909, 31; average cost of labor and material, \$2.25. 69 75

\$ 23,910 78

NOTE.—Cost of setting 7 private meters for fire protection paid for by consumers, \$105.00.

TABLE No. 5.

*Showing Number of Meters on January 1, 1910.*

| MAKE                   | $\frac{1}{4}$ " | $\frac{5}{8}$ " | $\frac{3}{4}$ " | 1"  | 1 $\frac{1}{2}$ " | 2" | 3" | 4" | 6" | 8" | Total  |
|------------------------|-----------------|-----------------|-----------------|-----|-------------------|----|----|----|----|----|--------|
| Acorn . . . . .        |                 | 41              |                 |     |                   | 2  |    |    |    |    | 43     |
| American . . . . .     |                 | 62              |                 |     |                   | 1  |    |    |    |    | 63     |
| Buffalo . . . . .      |                 | 27              | 1               |     |                   |    |    |    |    |    | 28     |
| Crown . . . . .        | 13              | 4               | 20              | 10  |                   | 2  | 7  |    |    |    | 56     |
| Columbia . . . . .     |                 | 94              |                 |     |                   |    |    |    |    |    | 94     |
| Crest . . . . .        |                 |                 |                 |     |                   |    | 1  | 1  |    |    | 2      |
| Empire . . . . .       |                 | 1               |                 |     |                   |    |    |    |    |    | 1      |
| Gem . . . . .          |                 |                 |                 |     |                   | 1  | 4  | 1  | 1  |    | 7      |
| Hersey . . . . .       |                 | 2,686           | 109             | 64  | 29                | 26 | 28 | 8  | 10 | 1  | 2,961  |
| Keystone . . . . .     |                 | 3,383           | 80              | 22  | 5                 | 11 |    | 1  |    |    | 3,503  |
| King . . . . .         |                 | 14              | 2               |     |                   | 2  |    |    |    |    | 18     |
| Lambert . . . . .      | 5               | 1,532           | 269             | 137 | 12                | 12 | 15 | 3  | 1  |    | 1,986  |
| Nash . . . . .         |                 | 896             | 73              | 29  | 1                 | 4  | 3  |    |    |    | 1,006  |
| Trident . . . . .      |                 | 1,583           | 8               | 48  | 6                 | 1  | 6  | 1  | 1  |    | 1,654  |
| Torrent . . . . .      |                 |                 |                 |     |                   |    |    |    | 2  |    | 2      |
| Thompson . . . . .     | 24              | 45              | 21              | 7   | 1                 | 1  | 6  |    |    |    | 105    |
| Union Rotary . . . . . | 2               |                 | 1               | 1   |                   |    | 1  |    |    |    | 5      |
| Worthington . . . . .  |                 | 518             | 57              | 26  | 1                 | 6  | 4  |    |    |    | 612    |
| Total . . . . .        | 44              | 10,887          | 641             | 344 | 55                | 69 | 75 | 15 | 15 | 1  | 12,146 |

NOTE.—10,527 meters are owned by the city and 1,619 by private citizens.

Number of meters set in 1909: City meters, 1,479; private meters, 31—Total . . . . . 1,510

Number of meters taken out in 1909: City meters, 59; private meters, 58—Total . . . . . 117

Total addition to meters . . . . . 1,393

NOTE.—There are included in the above—1—8" Hersey Detector Meters.

8—6" Hersey Detector Meters.

4—4" Hersey Detector Meters.

TABLE No. 6.

*Supply Mains from the Reservoirs to the City.*

|   |             |
|---|-------------|
| From Marshall Reservoir to Linden street, through Hollywood (connected to 20-inch main in Linden street) 12-inch.....                 | 1,539 feet  |
| From Marshall Reservoir to Linden street, through Hollywood (connected to 20-inch main in Linden street) 10-inch.....                 | 1,539 feet  |
| From Marshall Reservoir (west side) to Reservoir and Ashland streets, 16-inch .....   | 800 feet    |
| From Marshall Reservoir and Ashland street, through Clark Spring lot and Hollywood, to a point opposite new electric plant, 24-inch.. | 1,000 feet  |
| From Marshall Reservoir, through Clark Spring lot and Hollywood to new electric plant, 8-inch.....                                    | 2,200 feet  |
| From New Reservoir (south side) along Ashland to Harrison street, 24-inch .....   | 6,000 feet  |
| From New Reservoir north to Main street and eastward along Main street to old corporation line, 30-inch.....                          | 7,103 feet  |
| From north vault at New Reservoir along north and east banks of Reservoir to Ashland street, 24-inch.....                             | 1,073 feet  |
| From vault on north side of New Reservoir to stand pipe, 24-inch...   | 598 feet    |
| From stand pipe to Beverly street and Boulevard, 24-inch.....   | 691 feet    |
| From Beverly street to Stuart avenue, along Boulevard, 24-in....  | 2,851 feet  |
| Total .....   | 25,394 feet |

*Location and Size of Pump Mains.*

|   |            |
|---|------------|
| From New Pumps to New Reservoir, 30-inch.....   | 3,500 feet |
| From stand pipe to vault on pipe line, 24-inch.....                                   | 762 feet   |
| From north side of race-way at New Pump House to New Reservoir, 36-inch .....         | 3,445 feet |
| From electric pumps to 36-inch pipe line, 30-inch.....                                | 300 feet   |
| From 36-inch pipe line to 30-inch pipe near New Pump House (connection) 30-inch ..... | 125 feet   |
| Total .....   | 8,132 feet |

Supply and pump mains 33,526 feet or 6.35 miles.

On August 1st, 1909. when the Old Pump House was turned over to the Committee on Electricity for the establishment of a Municipal Electric Plant, the following pump mains from the Old Pump House to Marshall Reservoir were abandoned:

|   |            |
|---|------------|
| From Pumps Nos. 1 and 2, 2 mains, 12-inch.....    | 5,000 feet |
| From Pumps Nos. 4, 5 and 6, 3 mains, 8-inch ..... | 7,500 feet |

TABLE No. 7.

*Length and Sizes of Service Mains.*

| MAINS                   | Diameter<br>in<br>Inches | Length<br>in Feet | Length<br>in Miles |
|-------------------------|--------------------------|-------------------|--------------------|
| Service mains . . . . . | 1½                       | 2,280             | .43                |
| Service mains . . . . . | 3                        | 24,626            | 4.70               |
| Service mains . . . . . | 4                        | 144,894           | 27.44              |
| Service mains . . . . . | 6                        | 329,757           | 62.40              |
| Service mains . . . . . | 8                        | 83,803            | 6.40               |
| Service mains . . . . . | 10                       | 18,455            | 3.49               |
| Service mains . . . . . | 12                       | 68,666            | 12.90              |
| Service mains . . . . . | 16                       | 27,449            | 5.20               |
| Service mains . . . . . | 20                       | 8,080             | 1.53               |
| Service mains . . . . . | 24                       | 11,520            | 2.18               |
| Service mains . . . . . | 30                       | 1,928             | .36                |
| Total . . . . .         |                          | 670,858           | 127.12             |

Total number of feet and miles of service, pump and supply mains—704,584 feet, 133.41 miles.

TABLE No. 8.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Amelia street, south side, 358 feet west of Carter street .....                                | 15                   | 4                  | 1             | ...           | 19                               |
| Alley west side Meadow street between Monument avenue and Grace streets.....                   | 21                   | 4                  | 1             | ...           | 70                               |
| Alley between Monument avenue and Grace street, west side Lombardy street.....                 | 6                    | 4                  | 1             | ..            | 69                               |
| Alley between Broad and Grace streets and Lombardy and Allen avenue, east of Allen avenue..... | 27                   | 4                  | 1             | ...           | 68                               |
| Alley between Park and Monument avenues, west side Allen avenue .....                          | 17                   | 4                  | 1             | ...           | 63                               |
| Alley between Broad and Grace and Allison and Addison streets (west Allison).....              | 15                   | 4                  | 1             | ...           | 67                               |
| Alley between Monument avenue and Grace street, east side Allison street.....                  | 20                   | 4                  | 1             | ...           | 66                               |
| Addison street and alley north of Franklin, southeast corner .....                             | 8                    | 4                  | 1             | ...           | 66                               |
| *Albemarle and Pine streets, northeast corner.....x  | 13                   | 4                  | 1             | ...           | 22                               |
| Albemarle and Laurel streets, southwest corner.....x   | 13                   | 4                  | 1             | ...           | 26                               |
| Albemarle and Cherry streets, northeast corner.....x   | 18                   | 4                  | 1             | ...           | 26                               |
| Ashland street opposite City Stables near Wm. Byrd Park .....                                  | 20                   | 4                  | 1             | ...           | 20                               |
| Ashland and Randolph streets, northeast corner.....x   | 16                   | 4                  | 1             | ...           | 25                               |
| Arch and Second streets, northeast corner.....x  | 21                   | 4                  | 1             | ...           | 48                               |
| Arch and Third streets, northeast corner.....x   | 20                   | 4                  | 1             | ...           | 31                               |
| Arch and Fourth streets, northeast corner.....x  | 20                   | 4                  | 1             | ...           | 33                               |
| Arch and Seventh streets, northeast corner.....x   | 20                   | 4                  | 1             | ...           | 47                               |
| Arch and Eighth streets, northwest corner.....   | 20                   | 3                  | 1             | ...           | 45                               |
| Arch and Ninth streets.....x   | 30                   | 4                  | 1             | ...           | 50                               |
| Arch and Ninth streets, northwest corner.....x   | 11                   | 4                  | 1             | ...           | 47                               |
| Allen avenue, east side, at alley north of Franklin..x   | 27                   | 4                  | 1             | ...           | 63                               |
| Boulevard and alley south of Broad, southeast corner.  | 12                   | 4                  | 1             | ...           | 60                               |
| Bowe street, east side, at alley north of Marshall street .....                                | 26                   | 4                  | 1             | ...           | 17                               |
| Belvidere and Rowe streets, southeast corner.... x   | 22                   | 4                  | 1             | ...           | 29                               |
| Belvidere and Maiden Lane, southwest corner.....x  | 13                   | 4                  | 1             | ...           | 26                               |
| Blair street, southside, 433 feet east of Randolph street .....                                | 10                   | 4                  | 1             | ...           | 18                               |
| Bates and Third streets, southeast corner.....x  | 19½                  | 4                  | 1             | ...           | 32                               |
| Bates and Eighth streets, southwest corner.....  | 10                   | 4                  | 1             | ...           | 26                               |
| Beverly street, northside at alley west of Boulevard..x  | 6                    | 4                  | 1             | ...           | 55                               |
| Beverly street and road east of Reservoir lake, southwest corner .....                         | 7                    | 4                  | 1             | ...           | 60                               |
| Beverly and Washington streets, northeast corner....   | 28                   | 4                  | 1             | ...           | 14                               |
| Beverly and Lady streets, southwest corner.....  | 11                   | 4                  | 1             | ...           | 15                               |
| Beverly and Reservoir streets, southeast corner.....x  | 18                   | 4                  | 1             | ...           | 29                               |
| Beverly and Dobson streets, southwest corner.....  | 10                   | 4                  | 1             | ...           | 24                               |
| Beverly and Beech streets, northwest corner.....x  | 13                   | 4                  | 1             | ...           | 19                               |
| Beverly and Cherry streets, northeast corner.....x   | 13                   | 4                  | 1             | ...           | 24                               |
| Beverly and Laurel streets, southeast corner.....x   | 28                   | 4                  | 1             | ...           | 25                               |
| Beverly and Pine streets, southeast corner.....x   | 13                   | 4                  | 1             | ...           | 26                               |
| Beverly and Belvidere streets, northwest corner.....x  | 10                   | 4                  | 1             | ...           | 27                               |
| Bragg and Seventh streets, west side Seventh street.x  | 21                   | 4                  | 1             | ...           | 43                               |
| Byrd and Jefferson streets northeast corner.....x  | 25                   | 4                  | 1             | ...           | 43                               |
| Byrd and Second streets, northwest corner.....x  | 8                    | 4                  | 1             | ...           | 35                               |
| Byrd and Third streets, northeast corner.....x   | 25                   | 4                  | 1             | ...           | 41                               |
| Byrd and Fourth streets, northeast corner.....x  | 20                   | 4                  | 1             | ...           | 31                               |
| Byrd and Fifth streets, northwest corner.....x   | 25                   | 4                  | 1             | ...           | 34                               |
| Byrd and Sixth streets, northwest corner.....x   | 25                   | 3                  | 1             | ...           | 27                               |
| Byrd and Sixth streets, northeast corner.....x   | 20                   | 4                  | 1             | ...           | 37                               |
| Byrd and Seventh streets, northeast corner.....x   | 25                   | 4                  | 1             | ...           | 38                               |
| Byrd and Eighth streets, northeast corner.....x  | 25                   | 4                  | 1             | ...           | 38                               |

\*Sign x means branches on cross streets.



TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|---|----------------------|--------------------|---------------|---------------|----------------------------------|
| Byrd and Ninth streets, southwest corner.....x                    | 25                   | 4                  | 1             | ...           | 41                               |
| Byrd and Tenth streets, southwest corner.....                     | 30                   | 4                  | 1             | ...           | 36                               |
| Byrd and Tenth streets, northwest corner.....                     | 20                   | 4                  | 1             | ...           | 36                               |
| Byrd and Eleventh streets, northwest corner.....                  | 22                   | 4                  | 1             | ...           | 41                               |
| Byrd and Twelfth streets, southwest corner.....x                  | 25                   | 4                  | ...           | 1             | 51                               |
| Bank and Tenth streets, southwest corner.....                     | 21                   | 4                  | 1             | ...           | 46                               |
| Bank and Eleventh streets, north side.....                        | 22                   | 3                  | ...           | 1             | 46                               |
| Bank and Twelfth streets, northwest corner.....x                  | 22                   | 4                  | 1             | ...           | 43                               |
| Broad and Mulberry streets, southwest corner.....                 | 28                   | 4                  | 1             | ...           | 70                               |
| Broad and Addison streets, southwest corner.....x                 | 12                   | 4                  | 1             | ...           | 68                               |
| Broad street, south side 160 feet west of Lombardy street .....   | 20                   | 4                  | 1             | ...           | 69                               |
| Broad and Lombardy streets, southeast corner.....x                | 22                   | 4                  | 1             | ...           | 69                               |
| Broad and Bowe streets, northeast corner.....                     | 11                   | 4                  | 1             | ...           | 15                               |
| Broad and Kinney streets, northwest corner.....                   | 12                   | 4                  | 1             | ...           | 16                               |
| Broad and Harrison streets, northwest corner.....                 | 24                   | 4                  | 1             | ...           | 19                               |
| Broad and Ryland streets, southeast corner.....                   | 22                   | 4                  | 1             | ...           | 17                               |
| Broad and Harrison streets, southeast corner.....                 | 21                   | 4                  | 1             | ...           | 19                               |
| Broad and Hancock streets, northeast corner.....                  | 45                   | 4                  | 1             | ...           | 20                               |
| Broad (north side) between Hancock and Graham streets .....       | 45                   | 4                  | 1             | ...           | 20                               |
| Broad and Gilmer, northwest corner.....                           | 45                   | 4                  | 1             | ...           | 21                               |
| Broad and Belvidere streets, southeast corner.....x               | 17                   | 4                  | 1             | ...           | 20                               |
| Broad and Smith streets, northeast corner.....x                   | 11                   | 4                  | 1             | ...           | 24                               |
| Broad and Munford streets, northeast corner.....                  | 45                   | 4                  | ...           | 1             | 24                               |
| Broad and Henry streets, northwest corner.....                    | 45                   | 4                  | ...           | 1             | 25                               |
| Broad and Jefferson streets, southeast corner.....x               | 14                   | 4                  | 1             | ...           | 28                               |
| Broad and Jefferson streets, northwest corner.....                | 15                   | 4                  | 1             | ...           | 24                               |
| Broad and Monroe streets, northeast corner.....x                  | 21                   | 4                  | 1             | ...           | 25                               |
| Broad and Madison streets, northeast corner.....                  | 45                   | 4                  | 1             | ...           | 25                               |
| Broad and Foushee streets, southwest corner.....x                 | 16                   | 4                  | 1             | ...           | 25                               |
| Broad and Foushee streets, northwest corner.....                  | 11                   | 4                  | 1             | ...           | 23                               |
| Broad and Adams streets, southeast corner.....                    | 45                   | 4                  | ...           | 1             | 25                               |
| Broad and First streets, southeast corner.....x                   | 25                   | 4                  | 1             | ...           | 21                               |
| Broad and First streets, northwest corner.....x                   | 21                   | 4                  | 1             | ...           | 23                               |
| Broad and Second streets, northwest corner.....x                  | 21                   | 4                  | 1             | ...           | 23                               |
| Broad and Second streets, southwest corner.....x                  | 22                   | 4                  | 1             | ...           | 26                               |
| Broad and Third streets, northwest corner.....x                   | 21                   | 4                  | 1             | ...           | 22                               |
| Broad and Third streets, southeast corner.....                    | 23                   | 4                  | ...           | 1             | 23                               |
| Broad and Fourth streets, southeast corner.....x                  | 21                   | 4                  | 1             | ...           | 24                               |
| Broad and Fourth streets, northeast corner.....x                  | 21                   | 4                  | 1             | ...           | 20                               |
| Broad and Fifth streets, southwest corner.....x                   | 25                   | 4                  | 1             | ...           | 20                               |
| Broad and Fifth streets, northwest corner.....                    | 36                   | 6                  | 1             | ...           | 21                               |
| Broad and Sixth streets, northeast corner.....x                   | 45                   | 3                  | 1             | ...           | 19                               |
| Broad and Sixth streets, southeast corner.....x                   | 45                   | 4                  | 1             | ...           | 25                               |
| Broad and Seventh streets, northeast corner.....                  | 45                   | 4                  | 1             | ...           | 20                               |
| Broad and Seventh streets, southwest corner.....                  | 21                   | 4                  | 1             | ...           | 20                               |
| Broad and Seventh streets, southeast corner.....                  | 45                   | 4                  | 1             | ...           | 21                               |
| Broad and Eighth streets, northwest corner.....x                  | 11                   | 4                  | 1             | ...           | 22                               |
| Broad and Ninth streets, northwest corner.....x                   | 19                   | 4                  | 1             | ...           | 25                               |
| Broad and Ninth streets, southeast corner.....x                   | 25                   | 4                  | 1             | ...           | 24                               |
| Broad street between Ninth and Tenth streets (engine house) ..... | 40                   | 4                  | 1             | ...           | 24                               |
| Broad and Tenth streets, southwest corner.....                    | 45                   | 4                  | 1             | ...           | 26                               |
| Broad and Eleventh streets, northeast corner.....                 | 45                   | 3                  | 1             | ...           | 27                               |
| Broad and Twelfth streets, northeast corner.....                  | 25                   | 4                  | 1             | ...           | 30                               |
| Broad and Twelfth streets, southwest corner.....x                 | 41                   | 4                  | 1             | ...           | 30                               |
| Broad street, south side, 290 feet east of Twelfth street .....   | 45                   | 3                  | 1             | ...           | 38                               |
| Broad and Fourteenth streets, southeast corner.....               | 13                   | 4                  | 1             | ...           | 47                               |

Sign x means branches on cross streets.

TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Broad and Mayo streets, southeast corner.....              | 15                   | 4                  | 1             | ...           | 51                               |
| Broad street and Jail alley, northeast corner.....         | 45                   | 4                  | 1             | ...           | 60                               |
| Broad street and Lumpkin's alley, southeast corner..       | 22                   | 4                  | 1             | ...           | 69                               |
| Broad street and C. & O. R. R., northwest corner..         | 22                   | 4                  | 1             | ...           | 83                               |
| Broad and Seventeenth streets, northeast corner....        | 20                   | 4                  | 1             | ...           | 76                               |
| Broad and Eighteenth streets, southwest corner...x         | 25                   | 4                  | 1             | ...           | 54                               |
| Broad and Nineteenth streets, southeast corner...x         | 25                   | 3                  | 1             | ...           | 74                               |
| Broad and Twentieth streets, southwest corner...x          | 25                   | 4                  | ...           | 1             | 38                               |
| Broad and Twenty-first streets, northwest corner...x       | 25                   | 4                  | 1             | ...           | 53                               |
| Broad and Twenty-second streets, southeast corner...x      | 21                   | 4                  | 1             | ...           | 39                               |
| Broad and Twenty-third streets, southwest corner....       | 25                   | 4                  | 1             | ...           | 31                               |
| Broad and Twenty-fourth streets, northeast corner...x      | 21                   | 4                  | 1             | ...           | 28                               |
| Broad and Twenty-fifth streets, southwest corner...x       | 25                   | 4                  | 1             | ...           | 24                               |
| Broad and Twenty-sixth streets, northeast corner...x       | 21                   | 4                  | 1             | ...           | 21                               |
| Broad and Twenty-seventh streets, southwest corner..       | 25                   | 4                  | 1             | ...           | 26                               |
| Broad and Twenty-eighth streets, northeast corner...       | 25                   | 4                  | 1             | ...           | 24                               |
| Broad and Twenty-ninth streets, northeast corner...        | 22                   | 4                  | 1             | ...           | 30                               |
| Broad and Thirtieth streets, southwest corner.....         | 25                   | 4                  | ...           | 1             | 32                               |
| Broad and Thirty-first streets, southeast corner.....      | 14                   | 4                  | 1             | ...           | 32                               |
| Broad and Thirty-second streets, northwest corner....      | 10                   | 4                  | 1             | ...           | 53                               |
| Broad and Thirty-third streets, southwest corner.....      | 25                   | 4                  | 1             | ...           | 39                               |
| Broad and Thirty-fourth streets, southwest corner....      | 15                   | 4                  | 1             | ...           | 30                               |
| Broad and Thirty-fifth streets, northwest corner.....      | 10                   | 4                  | 1             | ...           | 31                               |
| Broad and Thirty-sixth streets, northwest corner...x       | 10                   | 4                  | 1             | ...           | 31                               |
| Broad and Thirty-seventh streets, northwest corner...      | 10                   | 4                  | 1             | ...           | 32                               |
| Baker and St. James streets, northwest corner.....         | 20                   | 4                  | ...           | 1             | 26                               |
| Baker and St. John streets, northwest corner.....          | 20                   | 4                  | 1             | ...           | 26                               |
| Baker and St. Paul streets, northwest corner.....          | 20                   | 4                  | 1             | ...           | 28                               |
| Baker and Hickory streets, northeast corner.....           | 20                   | 4                  | 1             | ...           | 30                               |
| Baker and Roane streets, northwest corner.....             | 20                   | 4                  | 1             | ...           | 33                               |
| Baker and Second streets, southeast corner.....            | 13                   | 4                  | 1             | ...           | 28                               |
| Baker and Third streets, southwest corner.....x            | 20                   | 1                  | ...           | 1             | 33                               |
| Baker and Fourth streets, northeast corner.....            | 14                   | 4                  | 1             | ...           | 30                               |
| Baker and Fifth streets, southeast corner.....x            | 20                   | 4                  | ...           | ...           | 31                               |
| Baker and Sixth streets, southeast corner.....             | 25                   | 4                  | ...           | 1             | 25                               |
| Baker and Seventh streets, northeast corner.....           | 8                    | 4                  | 1             | ...           | 24                               |
| Baker and Brook Avenue, northeast corner.....              | 20                   | 4                  | ...           | 1             | 36                               |
| Baker and Brook avenue north of Clay.....x                 | 20                   | 4                  | ...           | 1             | 31                               |
| Boyd and Kinney streets southwest corner.....              | 5½                   | 4                  | 1             | ...           | 21                               |
| Boyd and Norton streets, southwest corner.....             | 5½                   | 4                  | 1             | ...           | 25                               |
| Brook avenue and Monroe street, southeast corner...        | 11                   | 4                  | 1             | ...           | 24                               |
| Brook avenue, west side, near Creek.....x                  | 20                   | 4                  | ...           | 1             | 43                               |
| Buchanan and Carrington streets, southwest corner...x      | 9                    | 4                  | 1             | ...           | 35                               |
| Buchanan and Jay streets, southeast corner.....x           | 22                   | 4                  | 1             | ...           | 30                               |
| Buchanan and Cedar streets, southwest corner...x           | 12                   | 4                  | 1             | ...           | 31                               |
| Buchanan and Washington streets, northeast corner...x      | 22                   | 4                  | 1             | ...           | 30                               |
| Buchanan and Williams streets, southwest corner....        | 20                   | 4                  | 1             | ...           | 32                               |
| Buchanan and Richards streets, southwest corner...x        | 8                    | 4                  | 1             | ...           | 35                               |
| Buchanan and Baldwin streets, northwest corner....         | 7                    | 4                  | 1             | ...           | 29                               |
| Buchanan and Accommodation streets, northwest corner ..... | 6                    | 4                  | 1             | ...           | 67                               |
| Buchanan and Fairfield streets, southwest corner...x       | 8                    | 4                  | 1             | ...           | 65                               |
| Burton and Twenty-third streets, northwest corner...x      | 13                   | 4                  | 1             | ...           | 27                               |
| Canal and Linden streets, southeast corner.....x           | 11                   | 4                  | 1             | ...           | 24                               |
| Canal and Cherry streets, northwest corner.....x           | 18                   | 4                  | 1             | ...           | 21                               |
| Canal and Laurel streets, south side Canal street....      | 22                   | 4                  | ...           | 1             | 32                               |
| Canal and Pine streets, northeast corner.....              | 13                   | 4                  | ...           | 1             | 26                               |
| Canal and Belvidere streets, northwest corner.....x        | 14                   | 4                  | 1             | ...           | 28                               |
| Canal and Madison streets, southeast corner.....           | 19                   | 4                  | 1             | ...           | 34                               |
| Canal and Jefferson streets, northeast corner.....         | 23                   | 4                  | 1             | ...           | 39                               |

Fig'n x means branches on cross streets.



TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Canal and Adams streets, northeast corner.....                   | 23                   | 4                  | .             | 1             | 43                               |
| Canal and Foushee streets, southeast corner.....                 | 20                   | 4                  | 1             | .             | 43                               |
| Canal and First streets, northeast corner.....                   | 23                   | 4                  | .             | 1             | 28                               |
| Canal and Second streets, southeast corner.....                  | 25                   | 4                  | .             | 1             | 35                               |
| Canal and Third streets, northwest corner.....x                  | 27                   | 4                  | 1             | .             | 32                               |
| Canal and Fourth streets, northeast corner.....x                 | 25                   | 4                  | .             | 1             | 42                               |
| Canal and Fifth streets, southwest corner.....x                  | 21                   | 4                  | 1             | .             | 25                               |
| Canal and Sixth streets, northeast corner.....                   | 20                   | 3                  | 1             | .             | 31                               |
| Canal and Seventh streets, northeast corner.....                 | 25                   | 4                  | .             | 1             | 35                               |
| Canal and Eighth streets, northeast corner.....                  | 24                   | 4                  | 3             | .             | 35                               |
| Canal and Tenth streets, southeast corner.....                   | 25                   | 4                  | .             | 1             | 29                               |
| Canal and Eleventh streets, southwest corner.....                | 33                   | 4                  | .             | .             | 35                               |
| Canal and Twelfth streets, southwest corner.....                 | 27                   | 4                  | 1             | .             | 41                               |
| Canal and Thirteenth streets, northwest corner.....              | 25                   | 4                  | 1             | .             | 43                               |
| Chaffin and Elm streets, southwest corner.....                   | 9                    | 4                  | 1             | .             | 62                               |
| Chaffin and Strawberry streets, southwest corner....             | 9                    | 4                  | 1             | .             | 61                               |
| Chaffin and Lombardy streets, northwest corner.....x             | 6                    | 4                  | 1             | .             | 11                               |
| Chaffin street, southside 250 feet west of Randolph street ..... | 8½                   | 4                  | 1             | .             | 13                               |
| Chaffin and Reservoir streets, southwest corner....x             | 12                   | 4                  | 1             | .             | 29                               |
| Chaffin and Beech streets, northwest corner.....x                | 14                   | 4                  | 1             | .             | 23                               |
| China and Cherry streets, southeast corner.....x                 | 22                   | 4                  | 1             | .             | 30                               |
| China and Laurel streets, northwest corner.....x                 | 13                   | 4                  | 1             | .             | 30                               |
| China and Pine streets, southwest corner.....x                   | 13                   | 4                  | 1             | .             | 27                               |
| Church street and Maiden Lane, southwest corner....x             | 13                   | 4                  | .             | 1             | 28                               |
| Cary and Deep Run streets, northwest corner.....x                | 8½                   | 4                  | 1             | .             | 55                               |
| Cary street and Boulevard, southwest corner.....                 | 12                   | 4                  | 1             | .             | 55                               |
| Cary and Mulberry streets, northwest corner.....                 | 7                    | 4                  | 1             | ...           | 60                               |
| Cary and Strawberry streets, southeast corner.....               | 12                   | 4                  | 1             | .             | 60                               |
| Cary and Sycamore streets, southwest corner.....                 | 11                   | 4                  | 1             | .             | 62                               |
| Cary and Rowland streets, northwest corner.....x                 | 9                    | 4                  | 1             | .             | 64                               |
| Cary and Park streets, northeast corner.....                     | 22                   | 4                  | 1             | .             | 12                               |
| Cary street and Allen avenue, northwest corner....x              | 9½                   | 4                  | 1             | .             | 66                               |
| Cary and Temple streets, southwest corner.....                   | 8                    | 4                  | 1             | .             | 13                               |
| Cary and Lombardy streets, northeast corner.....                 | 22                   | 4                  | 1             | .             | 14                               |
| Cary and Harvie streets, southwest corner.....                   | 22                   | 4                  | 1             | .             | 17                               |
| Cary and Plum streets, northeast corner.....x                    | 11                   | 4                  | 1             | .             | 15                               |
| Cary and Short streets, northeast corner.....                    | 22                   | 4                  | 1             | .             | 20                               |
| Cary and Morris streets, northeast corner.....                   | 22                   | 4                  | 1             | .             | 25                               |
| Cary and Beech streets, northeast corner.....x                   | 26                   | 4                  | .             | .             | 24                               |
| Cary and Linden streets, southwest corner.....                   | 18                   | 4                  | 1             | .             | 16                               |
| Cary and Cherry streets, northeast corner.....                   | 18                   | 4                  | 1             | ...           | 20                               |
| Cary and Laurel streets, southeast corner.....                   | 18                   | 4                  | 1             | .             | 20                               |
| Cary and Pine streets, northeast corner.....                     | 13                   | 4                  | 1             | .             | 24                               |
| Cary and Belvidere streets, southwest corner.....x               | 12                   | 4                  | 1             | ...           | 25                               |
| Cary and Madison streets, southwest corner.....                  | 23                   | 4                  | 1             | .             | 33                               |
| Cary and Jefferson streets, southeast corner.....                | 23                   | 4                  | .             | 1             | 56                               |
| Cary and Adams streets, northeast corner.....                    | 23                   | 4                  | 1             | ...           | 33                               |
| Cary and Foushee streets, northeast corner.....                  | 23                   | 4                  | 1             | .             | 29                               |
| Cary and First streets, southeast corner.....                    | 25                   | 4                  | 1             | .             | 26                               |
| Cary and Second streets, northwest corner.....x                  | 21                   | 4                  | 1             | .             | 26                               |
| Cary and Third streets, southwest corner.....                    | 25                   | 4                  | 1             | .             | 30                               |
| Cary and Fourth streets, southwest corner.....                   | 22                   | 4                  | 1             | .             | 35                               |
| Cary and Fifth streets, southwest corner.....x                   | 25                   | 4                  | .             | 1             | 37                               |
| Cary and Sixth streets, northwest corner.....x                   | 25                   | 4                  | 5             | .             | 27                               |
| Cary and Seventh streets, southeast corner.....                  | 15                   | 1                  | 1             | .             | 34                               |
| Cary and Seventh streets, northwest corner.....                  | 25                   | 4                  | 1             | .             | 55                               |
| Cary and Eighth streets, northwest corner.....                   | 25                   | 4                  | .             | 1             | 38                               |
| Cary and Ninth streets, northeast corner.....                    | 25                   | 4                  | 1             | ...           | 38                               |
| Cary street between Ninth and Tenth streets.....                 | 17                   | 4                  | 1             | ...           | 46                               |

Sign x means branches on cross streets.

TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Cary and Tenth streets, southeast corner.....                            | 20                   | 4                  | 1             | ..            | 42                               |
| Cary and Eleventh streets, northwest corner.....                         | 25                   | 3                  | 1             | ..            | 38                               |
| Cary and Twelfth streets, northwest corner.....                          | 25                   | 4                  | 1             | ..            | 39                               |
| Cary and Twelfth streets, southwest corner.....                          | 18                   | 4                  | 1             | ..            | 39                               |
| Cary and Thirteenth streets, northwest corner.....                       | 25                   | 4                  | 1             | ..            | 44                               |
| Cary and Fourteenth streets, southeast corner.....x                      | 14                   | 4                  | 1             | ..            | 53                               |
| Cary and Virginia streets, southeast corner.....x                        | 10                   | 4                  | 1             | ..            | 51                               |
| Cary and Fourteenth streets, northwest corner.....x                      | 25                   | 4                  | 1             | ..            | 53                               |
| Cary street between Fourteenth and Fifteenth streets.                    | 9                    | 4                  | 1             | ..            | 55                               |
| Cary and Fifteenth streets, southwest corner.....x                       | 25                   | 4                  | ..            | 1             | 57                               |
| Cary and Fifteenth streets, northeast corner.....x                       | 17                   | 4                  | 1             | ..            | 57                               |
| Cary street, south side, between Fifteenth and Seventeenth streets ..... | 16                   | 4                  | 1             | ..            | 58                               |
| Cary and Seventeenth streets, northwest corner.....                      | 25                   | 4                  | ..            | 1             | 59                               |
| Cary and Eighteenth streets, northwest corner.....x                      | 25                   | 4                  | 1             | ..            | 59                               |
| Cary and Nineteenth streets, northeast corner.....x                      | 25                   | 4                  | 1             | ..            | 56                               |
| Cary and Nineteenth streets, southwest corner.....x                      | 16                   | 4                  | 1             | ..            | 56                               |
| Cary and Twentieth streets, northwest corner.....x                       | 25                   | 4                  | ..            | 1             | 54                               |
| Cary and Twentieth streets, southeast corner.....x                       | 21                   | 4                  | 1             | ..            | 55                               |
| Cary and Twenty-first streets, southeast corner.....                     | 25                   | 4                  | 1             | ..            | 52                               |
| Cary and Twenty-first streets, northwest corner....x                     | 22                   | 4                  | 1             | ..            | 53                               |
| Cary and Twenty-second streets, northwest corner....x                    | 25                   | 4                  | 1             | ..            | 52                               |
| Cary and Twenty-third streets, northwest corner....                      | 24                   | 4                  | 1             | ..            | 50                               |
| Cary and Twenty-third streets, southeast corner.....                     | 27                   | 4                  | 1             | ..            | 50                               |
| Cary and Twenty-fourth streets, northwest corner...x                     | 25                   | 4                  | ..            | 1             | 47                               |
| Cary and Twenty-fifth streets, southwest corner....x                     | 15                   | 4                  | 1             | ..            | 48                               |
| Cary and Twenty-sixth streets, southwest corner....                      | 15                   | 4                  | 1             | ..            | 48                               |
| Cary and Pear streets, northwest corner.....x                            | 11                   | 4                  | 1             | ..            | 45                               |
| Capitol and Eleventh streets, northeast corner.....x                     | 22                   | 4                  | 1             | ..            | 27                               |
| College street, 120 feet south of Marshall street....x                   | 20                   | 3                  | ..            | 1             | 39                               |
| Catherine and Smith streets, northeast corner.....                       | 15                   | 4                  | 1             | ..            | 36                               |
| Catherine and Gilmer streets, southeast corner.....                      | 15                   | 4                  | 1             | ..            | 30                               |
| Catherine and Henry streets, northwest corner....x                       | 15                   | 4                  | 1             | ..            | 26                               |
| Charity and St. James streets, southwest corner....x                     | 25                   | 4                  | 1             | ..            | 27                               |
| Charity and St. John streets, southeast corner.....                      | 25                   | 4                  | 1             | ..            | 28                               |
| Charity and St. Paul streets, northeast corner.....x                     | 20                   | 4                  | 1             | ..            | 29                               |
| Charity and Second streets, northwest corner.....x                       | 25                   | 4                  | 1             | ..            | 29                               |
| Clay and Duncan streets, southwest corner.....                           | 13                   | 4                  | 1             | ..            | 70                               |
| Clay and Lodge streets, southwest corner.....                            | 13                   | 4                  | 1             | ..            | 70                               |
| Clay and Bowe streets, southeast corner.....                             | 22                   | 4                  | ..            | 1             | 17                               |
| Clay and Kinney streets, northwest corner.....x                          | 21                   | 4                  | 1             | ..            | 14                               |
| Clay and Norton streets, southeast corner.....                           | 25                   | 4                  | ..            | 1             | 20                               |
| Clay and Harrison streets, northeast corner.....                         | 25                   | 4                  | 1             | ..            | 24                               |
| Clay and Hancock streets, northwest corner.....x                         | 9                    | 4                  | 1             | ..            | 25                               |
| Clay street, north side, between Graham and Hancock streets .....        | 25                   | 4                  | ..            | 1             | 26                               |
| Clay and Gilmer streets, southwest corner.....                           | 25                   | 4                  | ..            | 1             | 28                               |
| Clay and Graham streets, northwest corner.....                           | 11                   | 4                  | 1             | ..            | ..                               |
| Clay and Munford streets, southeast corner.....x                         | 10                   | 4                  | 1             | ..            | 23                               |
| Clay and Smith streets, northeast corner.....                            | 25                   | 4                  | 1             | ..            | 25                               |
| Clay and Henry streets, northwest corner.....x                           | 11                   | 4                  | 1             | ..            | 22                               |
| Clay and Monroe streets, southwest corner.....                           | 25                   | 4                  | 1             | ..            | 24                               |
| Clay and Brook avenue, southeast corner.....                             | 25                   | 4                  | 1             | ..            | 24                               |
| Clay and Adams streets, northwest corner.....x                           | 15                   | 4                  | 1             | ..            | 24                               |
| Clay and St. James streets, northwest corner.....x                       | 14                   | 4                  | 1             | ..            | ..                               |
| Clay and First streets, northwest corner.....x                           | 25                   | 4                  | 1             | ..            | 24                               |
| Clay and Second streets, northwest corner.....x                          | 25                   | 4                  | 1             | ..            | 23                               |
| Clay and Third streets, northeast corner.....x                           | 25                   | 4                  | ..            | 1             | 23                               |
| Clay and Fourth streets, northeast corner.....x                          | 25                   | 4                  | 1             | ..            | 25                               |
| Clay and Fifth streets, northeast corner.....x                           | 28                   | 4                  | 1             | ..            | 23                               |

Sign x means branches on cross streets.

TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|---|----------------------|--------------------|---------------|---------------|----------------------------------|
| Clay and Sixth streets, northwest corner.....x                        | 25                   | 4                  | 1             | ...           | 25                               |
| Clay and Seventh streets, southeast corner.....x                      | 25                   | 4                  | 1             | ...           | 27                               |
| Clay and Eighth streets, southeast corner.....x                       | 25                   | 4                  | 1             | ...           | 24                               |
| Clay and Ninth streets, northwest corner.....x                        | 25                   | 4                  | 1             | ...           | 25                               |
| Clay and Tenth streets, northeast corner.....x                        | 25                   | 4                  | 1             | ...           | 22                               |
| Clay and Eleventh streets, southeast corner.....x                     | 21                   | 4                  | 1             | ...           | 21                               |
| Clay and Twelfth streets, southwest corner.....x                      | 25                   | 4                  | 1             | ...           | 26                               |
| Clay and Thirteenth streets, southeast corner.....x                   | 12                   | 4                  | 1             | ...           | 65                               |
| Clay and Eighteenth streets, northwest corner.....x                   | 25                   | 4                  | 1             | ...           | 40                               |
| Church Hill avenue and Twenty-second street, northeast corner .....   | 14                   | 4                  | 1             | ...           | 39                               |
| Clay and Twenty-third streets, southwest corner.....x                 | 25                   | 4                  | 1             | ...           | 38                               |
| Clay and Twenty-fourth streets, northwest corner.....x                | 18                   | 4                  | 1             | ...           | 33                               |
| Clay and Twenty-fifth streets, southeast corner.....x                 | 18                   | 4                  | 1             | 1             | 30                               |
| Clay and Twenty-sixth streets, southeast corner.....x                 | 13                   | 4                  | 1             | ...           | 30                               |
| Clay and Twenty-seventh streets, northwest corner.....x               | 35                   | 4                  | 1             | ...           | 8                                |
| Clay and Twenty-eighth streets, northwest corner.....x                | 35                   | 4                  | 1             | 1             | 24                               |
| Clay and Twenty-ninth streets, northeast corner.....x                 | 35                   | 4                  | 1             | ...           | 24                               |
| Clay and Thirtieth streets, northeast corner.....x                    | 35                   | 4                  | 1             | ...           | 25                               |
| Clay and Thirty-first streets, northwest corner.....x                 | 29                   | 4                  | 1             | ...           | 30                               |
| Clay and Thirty-third streets, southwest corner.....x                 | 10                   | 4                  | 1             | ...           | 32                               |
| Clay and Thirty-fourth streets, southwest corner.....x                | 16                   | 4                  | 1             | ...           | 35                               |
| Clay and Thirty-fifth streets, northwest corner.....x                 | 10                   | 4                  | 1             | ...           | 38                               |
| Clay and Thirty-sixth streets, southwest corner.....x                 | 11                   | 4                  | 1             | ...           | 36                               |
| Carrington street, 320 feet west of Mosby street.....                 | 6                    | 4                  | 1             | ...           | 36                               |
| Carrington, south side, between Eighteenth and Mosby streets .....    | 12                   | 4                  | 1             | ...           | 36                               |
| Carrington and Twenty-second or Scott streets, southwest corner ..... | 10                   | 4                  | 1             | ...           | 39                               |
| Carrington and Tulip streets, southwest corner.....x                  | 9                    | 4                  | 1             | ...           | 37                               |
| Crouch between Sixth and Seventh streets.....x                        | 25                   | 4                  | 1             | ...           | 21                               |
| Crouch and Sixth streets, southwest corner.....x                      | 8                    | 4                  | 1             | ...           | 26                               |
| Coutts and St. Paul streets, southwest corner.....x                   | 6                    | 4                  | 1             | ...           | 30                               |
| Coutts and First streets, northeast corner.....x                      | 25                   | 4                  | 1             | ...           | 30                               |
| Coutts and Second streets, southwest corner.....x                     | 25                   | 4                  | 1             | ...           | 31                               |
| Cherry street, 83 feet north of Park.....x                            | 14                   | 4                  | 1             | ...           | 48                               |
| Dance street, west of Reservoir street.....x                          | 6                    | 4                  | 1             | ...           | 26                               |
| Dance and Dobson streets, northwest corner.....x                      | 10                   | 4                  | 1             | ...           | 20                               |
| Dock street and Upper Gas Works.....x                                 | 3                    | 3                  | 1             | 1             | 59                               |
| Dock and Fourteenth streets, northwest corner.....x                   | 23                   | 4                  | 1             | ...           | 58                               |
| Dock (south) and Seventeenth streets, southwest corner .....          | 12                   | 4                  | 1             | ...           | 58                               |
| Dock (north) and Seventeenth streets, northwest corner .....          | 17                   | 4                  | 1             | ...           | 54                               |
| Dock (south) and Eighteenth streets, southeast corner .....           | 15                   | 4                  | 1             | ...           | 60                               |
| Dock street near Pear street, north side.....x                        | 18                   | 4                  | 1             | ...           | 55                               |
| Denny and Second streets, southwest corner.....x                      | 17                   | 4                  | 1             | ...           | 46                               |
| Denny and Fourth streets, northeast corner.....x                      | 7                    | 4                  | 1             | ...           | 35                               |
| Denny and Fifth streets, northwest corner.....x                       | 9                    | 4                  | 1             | ...           | 48                               |
| Denny and Sixth streets, northwest corner.....x                       | 8                    | 4                  | 1             | ...           | 41                               |
| Denny and Seventh streets, northeast corner.....x                     | 17                   | 4                  | 1             | ...           | 40                               |
| Duval and St. Paul streets, northeast corner.....x                    | 29                   | 4                  | 1             | ...           | 24                               |
| Duval and St. James streets, southeast corner.....x                   | 10                   | 4                  | 1             | ...           | 23                               |
| Duval and St. Peter streets, southeast corner.....x                   | 13                   | 4                  | 1             | ...           | 26                               |
| Duval and First streets, northeast corner.....x                       | 20                   | 4                  | 1             | ...           | 27                               |
| Duval and Clarke streets, southwest corner.....x                      | 20                   | 4                  | 1             | 1             | 26                               |
| Duval and Judah streets, southwest corner.....x                       | 20                   | 4                  | 1             | ...           | 30                               |
| Duval street and Brook avenue, northeast corner.....x                 | 20                   | 4                  | 1             | 1             | 32                               |
| Duval and Second streets, northeast corner.....x                      | 20                   | 4                  | 1             | 1             | 30                               |

Sign x means branches on cross streets.



TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Duval and Fourth streets, southwest corner.....x                     | 20                   | 4                  | .             | 1             | 29                               |
| Duval and Fifth streets, northeast corner.....                       | 13                   | 4                  | 1             | .             | 29                               |
| Duval and Sixth streets, northwest corner.....                       | 25                   | 4                  | .             | 1             | 28                               |
| Eighth street, west side, 385 feet north of Leigh street.....x       | 25                   | 4                  | 1             | .             | 22                               |
| Eleventh street, west side, 85 feet north of Byrd street.....x       | 10                   | 4                  | 1             | .             | 44                               |
| Eleventh street, between Main and Cary streets, east side.....x      | 9                    | 4                  | 1             | .             | 40                               |
| Eleventh street, north of Clay street.....x                          | 20                   | 4                  | 1             | .             | 30                               |
| Elm and Poplar streets, southwest corner.....x                       | 17                   | 4                  | 1             | .             | 52                               |
| Elm street, 132 feet south of Lester street.....x                    | 14                   | 4                  | 1             | .             | 55                               |
| Franklin and Ryland streets, northwest corner.....x                  | 13                   | 4                  | 1             | .             | 72                               |
| Franklin and Harrison streets, southwest corner.....                 | 25                   | 4                  | 1             | .             | 68                               |
| Franklin and Shafer streets, southeast corner.....                   | 24                   | 4                  | 1             | .             | 68                               |
| Franklin and Laurel streets, northeast corner.....                   | 25                   | 4                  | 1             | .             | 70                               |
| Franklin and Pine streets, northeast corner.....                     | 24                   | 4                  | 1             | .             | 40                               |
| Franklin and Belvidere streets, northwest corner.....                | 25                   | 4                  | 1             | .             | 41                               |
| Franklin and Henry streets, northwest corner.....x                   | 10                   | 4                  | 1             | .             | 43                               |
| Franklin and Monroe streets, southwest corner.....                   | 25                   | 4                  | .             | 1             | 46                               |
| Franklin and Madison streets, northwest corner.....x                 | 9                    | 4                  | 1             | .             | 41                               |
| Franklin and Jefferson streets, northwest corner....                 | 25                   | 4                  | 1             | .             | 38                               |
| Franklin and Adams streets, southwest corner.....                    | 25                   | 4                  | .             | 1             | 34                               |
| Franklin and Foushee streets, northwest corner.....x                 | 15                   | 4                  | 1             | .             | 38                               |
| Franklin and First streets, southwest corner.....                    | 25                   | 4                  | .             | 1             | 20                               |
| Franklin and Second streets, southwest corner.....x                  | 21                   | 4                  | 1             | .             | 39                               |
| Franklin and Third streets, southeast corner.....                    | 25                   | 4                  | .             | 1             | 24                               |
| Franklin and Fourth streets, northwest corner.....x                  | 25                   | 4                  | 1             | .             | 40                               |
| Franklin and Fifth streets, southeast corner.....x                   | 25                   | 4                  | 1             | .             | 22                               |
| Franklin and Sixth streets, northwest corner.....x                   | 25                   | 4                  | 1             | .             | 28                               |
| Franklin and Seventh street, southwest corner.....x                  | 25                   | 4                  | 1             | .             | 35                               |
| Franklin and Eighth streets, northeast corner.....x                  | 25                   | 4                  | 1             | .             | 36                               |
| Franklin and Ninth streets, northeast corner.....x                   | 25                   | 4                  | 1             | .             | 38                               |
| Franklin and Thirteenth streets, southwest corner....                | 25                   | 4                  | 1             | .             | 52                               |
| Franklin street 32 feet west of Fifteenth street.....                | 42                   | 4                  | 1             | .             | 59                               |
| Franklin and Fourteenth streets, southeast corner....                | 10                   | 4                  | 1             | .             | 63                               |
| Franklin and Fifteenth streets, northwest corner....                 | 25                   | 4                  | 1             | .             | 75                               |
| Franklin street, southside, 200 feet east of Fifteenth street.....   | 25                   | 4                  | 1             | .             | 84                               |
| Franklin and Union streets, southside.....                           | 10                   | 4                  | 1             | .             | 87                               |
| Franklin and Mayo streets, northeast corner.....x                    | 7                    | 3                  | 1             | .             | 60                               |
| Franklin between Seventeenth and Eighteenth streets, south side..... | 21                   | 4                  | 1             | .             | 87                               |
| Franklin and Eighteenth streets, southeast corner....                | 25                   | 4                  | 1             | .             | 85                               |
| Franklin and Nineteenth streets, southwest corner....                | 25                   | 4                  | 1             | .             | 50                               |
| Franklin and Nineteenth streets, southeast corner....                | 9                    | 4                  | 1             | .             | 58                               |
| Franklin and Twentieth streets, southeast corner....                 | 21                   | 4                  | 1             | .             | 46                               |
| Franklin and Twenty-first streets, southwest corner....              | 25                   | 4                  | 1             | .             | 73                               |
| Franklin and Twenty-second streets, north side.....                  | 22                   | 4                  | 1             | .             | 64                               |
| Franklin and Twenty-second streets, southwest corner.....            | 10                   | 4                  | 1             | .             | 65                               |
| Franklin and Twenty-third streets, northwest corner..                | 25                   | 3                  | .             | 1             | 60                               |
| Franklin and Twenty-fourth streets, southwest corner..               | 25                   | 4                  | 1             | .             | 54                               |
| Franklin and Twenty-fifth streets, southeast corner..x               | 25                   | 3                  | 1             | .             | 53                               |
| Franklin and Twenty-fifth streets, southwest corner..x               | 9                    | 4                  | 1             | .             | 53                               |
| Franklin and Twenty-sixth streets, northeast corner..x               | 21                   | 4                  | 1             | .             | 35                               |
| Franklin and Twenty-seventh streets, southwest corner.....           | 25                   | 3                  | 1             | .             | 34                               |
| Franklin and Twenty-eighth streets.....                              | 25                   | 3                  | 1             | .             | 26                               |
| Franklin and Twenty-ninth streets, northwest corner.....x            | 21                   | 4                  | 1             | .             | 27                               |

Sign x means branches on cross streets.

TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of<br>Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs.<br>per Square Inch |
|---|-------------------------|--------------------|---------------|---------------|-------------------------------------|
| Franklin and Thirtieth streets, northwest corner....x                               | 27                      | 4                  | 1             | ..            | 41                                  |
| Franklin and Thirty-first streets, southwest corner..x                              | 14                      | 4                  | 1             | ..            | 55                                  |
| Federal and Sixth streets, southwest corner.....x                                   | 16                      | 4                  | 1             | ..            | 25                                  |
| Federal and First streets, southwest corner.....x                                   | 25                      | 4                  | ..            | 1             | 26                                  |
| Federal and St. James streets, southeast corner....x                                | 25                      | 4                  | 1             | ..            | 28                                  |
| Federal and St. John streets, northwest corner.....x                                | 25                      | 4                  | ..            | 1             | 30                                  |
| Federal and St. Paul streets, southeast corner.....x                                | 18                      | 4                  | 1             | ..            | 31                                  |
| Federal and St. Peter streets, northeast corner.....x                               | 17                      | 4                  | 1             | ..            | 33                                  |
| Floyd and Auburn avenues, northwest corner.....x                                    | 10                      | 4                  | 1             | ..            | 64                                  |
| Floyd avenue and Sheppard street, northwest corner.....x                            | 9                       | 4                  | 1             | ..            | 65                                  |
| Floyd avenue and Deep Run street, northwest corner.....x                            | 9                       | 4                  | 1             | ..            | 67                                  |
| Floyd avenue and Mulberry streets, northwest corner.....x                           | 10                      | 4                  | 1             | ..            | 61                                  |
| Floyd avenue and Robinson street, southwest corner.....x                            | 7                       | 4                  | 1             | ..            | 59                                  |
| Floyd avenue and Elm street, northwest corner....x                                  | 8                       | 4                  | 1             | ..            | 62                                  |
| Floyd avenue and Sycamore street, southwest corner.....x                            | 9                       | 4                  | 1             | ..            | 60                                  |
| Floyd avenue and Park street, southwest corner....x                                 | 8                       | 4                  | 1             | ..            | 64                                  |
| Floyd avenue and Cedar street, northwest corner....x                                | 9                       | 4                  | 1             | ..            | 65                                  |
| Floyd avenue and Rowland street, northwest corner.....x                             | 10                      | 4                  | 1             | ..            | 65                                  |
| Floyd avenue and Meadow street, northeast corner..x                                 | 22                      | 4                  | 1             | ..            | 64                                  |
| Floyd avenue and Vine street, southwest corner.....x                                | 14                      | 4                  | 1             | ..            | 68                                  |
| Floyd and Allen avenues, southwest corner.....x                                     | 14                      | 4                  | 1             | ..            | 66                                  |
| Floyd avenue and Lombardy street.....x  | 32                      | 4                  | 1             | ..            | 66                                  |
| Floyd avenue and Harvie street, northwest corner....x                               | 18                      | 4                  | ..            | 1             | 66                                  |
| Floyd avenue and Linden street, northeast corner....x                               | 15                      | 4                  | 1             | ..            | 68                                  |
| Floyd avenue and Beech street, northeast corner....x                                | 15                      | 4                  | 1             | ..            | 68                                  |
| Floyd avenue and Morris street, northwest corner....x                               | 15                      | 4                  | 1             | ..            | 67                                  |
| Floyd avenue and Cherry street, northwest corner....x                               | 13                      | 4                  | 1             | ..            | 65                                  |
| Floyd avenue and Laurel street, northwest corner....x                               | 21                      | 4                  | 1             | ..            | 19                                  |
| Fulton and Lewis streets, southeast corner.....x                                    | 8                       | 4                  | 1             | ..            | 50                                  |
| Fulton and Nicholson streets, northwest corner.....x                                | 15                      | 4                  | 1             | ..            | 39                                  |
| Fulton and Graham streets, southwest corner.....x                                   | 15                      | 4                  | 1             | ..            | 40                                  |
| Fulton and Louisiana streets, northwest corner....x                                 | 10                      | 4                  | 1             | ..            | 39                                  |
| Fulton and State streets, northwest corner.....x                                    | 9                       | 4                  | 1             | ..            | 38                                  |
| Fulton and Orleans streets, southeast corner.....x                                  | 10                      | 4                  | 1             | ..            | 38                                  |
| Fourth street between Bates and Hospital (Colored Almshouse) .....                  | 25                      | 4                  | ..            | 1             | 28                                  |
| Fourteenth street, west side, at alley north of Cary.x                              | 25                      | 3                  | ..            | 1             | 47                                  |
| Fourteenth street, west side, north of Dock street..x                               | 19                      | 4                  | 1             | ..            | 56                                  |
| Fourteenth street, west side, north of Mayo's bridge..x                             | 5                       | 4                  | 1             | ..            | ..                                  |
| Fifth and Federal streets, southeast corner.....x                                   | 20                      | 4                  | 1             | ..            | 33                                  |
| Fifth and Charity streets, northeast corner.....x                                   | 20                      | 4                  | 1             | ..            | 32                                  |
| Fifteenth and Leigh streets, northwest corner....x                                  | 27                      | 4                  | 1             | ..            | 40                                  |
| Fifteenth and Poplar streets, northeast corner....x                                 | 20                      | 3                  | ..            | 1             | 48                                  |
| Fifteenth street, west side, at alley north of Cary street.....x                    | 25                      | 3                  | ..            | 1             | 55                                  |
| Fifteenth street, east side, at alley north of Main street.....x                    | 16                      | 4                  | 1             | ..            | 53                                  |
| Fifteenth street, north of Franklin street at Cross alley.....x                     | 25                      | 3                  | 1             | ..            | 54                                  |
| Government road and Thirty-sixth street, northeast corner.....x                     | 15                      | 4                  | 1             | ..            | 35                                  |
| Grace street between Boulevard and Deep Run street, northwest corner of alley.....x | 17                      | 4                  | 1             | ..            | 71                                  |
| Grace and Cedar streets, southwest corner.....x                                     | 14                      | 4                  | ..            | 1             | 63                                  |

Sign x means branches on cross streets.



TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Grace and Ryland streets, northwest corner.....x             | 16                   | 4                  | 1             |               | 13                               |
| Grace street and Richmond College.....                       | 2                    | 4                  | 1             |               | 66                               |
| Grace and Harrison streets, southwest corner.....            | 33                   | 4                  | 1             |               | 68                               |
| Grace and Shafer streets, southwest corner.....              | 25                   | 4                  | 1             |               | 68                               |
| Grace and Laurel streets, southeast corner.....              | 25                   | 4                  | 1             |               | 69                               |
| Grace and Pine streets, northeast corner.....                | 25                   | 4                  | 1             |               | 36                               |
| Grace and Henry streets, southeast corner.....               | 25                   | 4                  | 1             |               | 40                               |
| Grace and Monroe streets, southwest corner.....x             | 16                   | 4                  | 1             |               | 43                               |
| Grace and Madison streets, northeast corner.....             | 25                   | 4                  |               | 1             | 36                               |
| Grace and Jefferson streets, southeast corner.....x          | 15                   | 4                  |               | 1             | 38                               |
| Grace and Adams streets, northwest corner.....               | 25                   | 4                  | 1             |               | 84                               |
| Grace and Foushee streets, northeast corner.....             | 25                   | 4                  | 1             |               | 39                               |
| Grace and First streets, southeast corner.....x              | 20                   | 4                  | 1             |               | 20                               |
| Grace and Second streets, southeast corner.....              | 25                   | 4                  | 1             |               | 38                               |
| Grace and Third streets, southwest corner.....               | 17                   | 4                  | 1             |               | 40                               |
| Grace (north) on east side Third street (engine house).....x | 12                   | 4                  | 1             |               | 26                               |
| Grace and Fourth streets, northeast corner.....              | 25                   | 4                  |               | 1             | 40                               |
| Grace and Fifth streets, southeast corner.....x              | 21                   | 4                  | 1             |               | 89                               |
| Grace and Sixth streets, southeast corner.....               | 25                   | 4                  | 1             |               | 24                               |
| Grace and Seventh streets, northwest corner.....x            | 25                   | 4                  | 1             |               | 25                               |
| Grace and Eighth streets, northeast corner.....              | 25                   | 3                  | 1             |               | 26                               |
| Grace and Ninth streets, southeast corner.....x              | 21                   | 4                  | 1             |               | 27                               |
| Grace street, east, in Capitol Square.....                   | 12                   | 4                  | 1             |               | 27                               |
| Grace street, east, in Capitol Square.....                   | 12                   | 4                  | 1             |               | 22                               |
| Grace and Seventeenth streets, southeast corner.....         | 25                   | 4                  | 1             |               | 52                               |
| Grace and Eighteenth streets, northeast corner.....x         | 25                   | 4                  | 1             |               | 49                               |
| Grace and Nineteenth streets, northwest corner.....          | 21                   | 4                  | 1             |               | 45                               |
| Grace and Twentieth streets, southwest corner.....x          | 25                   | 4                  | 1             |               | 34                               |
| Grace and Twenty-first streets, southwest corner.....        | 11                   | 4                  | 1             |               | 29                               |
| Grace and Twenty-second streets, northeast corner.....       | 25                   | 3                  | 1             |               | 29                               |
| Grace and Twenty-third streets, southeast corner....         | 20                   | 4                  | 1             |               | 28                               |
| Grace and Twenty-fourth streets, northeast corner....        | 20                   | 4                  | 1             |               | 24                               |
| Grace and Twenty-fifth streets, southeast corner....         | 25                   | 3                  | 1             |               | 32                               |
| Grace and Twenty-sixth streets, northwest corner...x         | 20                   | 4                  | 1             |               | 26                               |
| Grace and Twenty-seventh streets, southwest corner....       | 25                   | 4                  | 1             |               | 26                               |
| Grace and Twenty-eighth streets, southwest corner....        | 25                   | 4                  | 1             |               | 25                               |
| Grace and Twenty-ninth streets, northwest corner...x         | 22                   | 4                  | 1             |               | 27                               |
| Grace and Thirty-second streets, northwest corner..          | 25                   | 4                  | 1             |               | 28                               |
| Grove avenue and Roseneath road, southeast corner..          | 14                   | 4                  | 1             |               | 65                               |
| Grove and Auburn avenues southeast corner.....               | 14                   | 4                  | 1             |               | 64                               |
| Grove and West avenues, southeast corner.....                | 14                   | 4                  | 1             |               | 66                               |
| Grove avenue and Sheppard street, southwest corner..         | 14                   | 4                  | 1             |               | 64                               |
| Grove avenue and Deep Run street, southwest corner..         | 14                   | 4                  | 1             |               | 65                               |
| Grove avenue and Beech street, southwest corner....          | 15                   | 4                  | 1             |               | 64                               |
| Grove avenue and Harvie street, northwest corner....         | 15                   | 4                  | 1             |               | 64                               |
| Grove avenue and Morris street, southeast corner...x         | 10                   | 4                  | 1             |               | 64                               |
| Grove avenue and Plum street, southeast corner.....          | 24                   | 4                  | 1             |               | 67                               |
| Grove avenue and Park street, northeast corner.....          | 13                   | 4                  | 1             |               | 65                               |
| Grove and Allen avenues, southwest corner.....x              | 10                   | 4                  | 1             |               | 66                               |
| Grove avenue and Vine street, northwest corner.....x         | 7                    | 4                  | 1             |               | 63                               |
| Grove avenue and Robinson street, southwest corner..         | 15                   | 4                  | 1             |               | 63                               |
| Grove avenue and Lombardy street, southeast corner.....x     | 19                   | 4                  | 1             |               | 65                               |
| Grove avenue and Boulevard, southwest corner....             | 14                   | 4                  | 1             |               | 65                               |
| Grove avenue and Rowland street, northwest corner....        | 29                   | 4                  | 1             |               | 66                               |
| Grove avenue and Meadow street, southwest corner....         | 18                   | 4                  | 1             |               | 66                               |
| Grove avenue and Strawberry street, northwest corner.....x   | 16                   | 4                  | 1             |               | 64                               |
| Grove avenue and Cedar street, northwest corner.....         | 28                   | 4                  | 1             |               | 64                               |

Sign x means branches on cross streets.

TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|---|----------------------|--------------------|---------------|---------------|----------------------------------|
| Goddin and Tyler streets, southeast corner.....                     | 12                   | 4                  | 1             | ...           | 39                               |
| Goddin and Calhoun streets, northeast corner.....                   | 15                   | 4                  | 1             | ...           | 36                               |
| Graham and Erin streets, northeast corner.....x                     | 10                   | 4                  | 1             | ...           | 44                               |
| Graham and Marshall streets (Fulton) northwest corner.....x         | 10                   | 4                  | 1             | ...           | 43                               |
| Hermitage road, north of Leigh street (Rosenegk Brewery) .....      | ...                  | 4                  | 1             | ...           | ...                              |
| Hermitage road, west side, 100 feet south of railroad bridge .....  | 7                    | 4                  | 1             | ...           | 78                               |
| Hanover street and Boulevard, southeast corner....                  | 18                   | 4                  | 1             | ...           | 66                               |
| Hanover and Robinson streets, southeast corner.....                 | 16                   | 4                  | 1             | ...           | 67                               |
| Hanover and Cedar streets, northwest corner.....x                   | 12                   | 4                  | 1             | ...           | 67                               |
| Hanover and Elm streets, southeast corner.....                      | 15                   | 4                  | 1             | ...           | 67                               |
| Hanover and Sycamore streets, southwest corner.....                 | 15                   | 4                  | 1             | ...           | 67                               |
| Hanover and Rowland streets, southwest corner.....                  | 16                   | 4                  | 1             | ...           | 65                               |
| Hanover and Lombardy streets, northeast corner.....                 | 27                   | 4                  | 1             | ...           | 65                               |
| Hanover and Vine streets, northeast corner.....                     | 14                   | 4                  | 1             | ...           | 67                               |
| Hanover and Park streets, southwest corner.....                     | 16                   | 4                  | 1             | ...           | 65                               |
| Hanover and Walnut streets, southwest corner.....                   | 15                   | 4                  | 1             | ...           | 66                               |
| Hill and St. James streets, southwest corner.....x                  | 16                   | 4                  | 1             | ...           | 30                               |
| Hill and St. Paul streets, southeast corner.....x                   | 14                   | 4                  | 1             | ...           | 35                               |
| Hill and St. John streets, southeast corner.....x                   | 12                   | 4                  | 1             | ...           | 30                               |
| Hickory and Calhoun streets, southwest corner.....x                 | 12                   | 1                  | 1             | ...           | 37                               |
| Holly and Church streets, northwest corner.....x                    | 15                   | 4                  | 1             | ...           | 44                               |
| Holly and Pine streets, northeast corner.....x                      | 13                   | 4                  | 1             | ...           | 26                               |
| Holly street and R. & A. A. R., southwest corner....                | 3                    | 1                  | ...           | ...           | 55                               |
| Howard and Rowe streets, southwest corner.....x                     | 15                   | 4                  | ...           | 1             | 32                               |
| Hospital street between Second and Fourth streets (Almshouse) ..... | 20                   | 4                  | ...           | 1             | 31                               |
| Hospital street between Second and Fourth streets (inside) .....    | 20                   | 4                  | ...           | 1             | ...                              |
| Hospital and Second streets, southwest corner.....                  | 24                   | 4                  | 1             | ...           | 36                               |
| Hospital and Fourth streets, southwest corner.....                  | 3                    | 4                  | 1             | ...           | 35                               |
| Hospital and Fifth streets, southeast corner.....x                  | 18                   | 4                  | 1             | ...           | 32                               |
| Hospital and Seventh streets, northwest corner.....                 | 11                   | 4                  | 1             | ...           | 56                               |
| Ivy and Robinson streets, southeast corner.....                     | 10                   | 4                  | 1             | ...           | 63                               |
| Ivy and Cedar streets, southeast corner.....x                       | 11                   | 4                  | 1             | ...           | 65                               |
| Ivy and Sycamore streets, southeast corner.....                     | 9                    | 4                  | 1             | ...           | 70                               |
| Ivy and Meadow streets, southwest corner.....x                      | 9                    | 4                  | 1             | ...           | 68                               |
| Jacquelin and Lombardy streets, southwest corner..x                 | 6                    | 4                  | 1             | ...           | 16                               |
| Jackson and St. James streets, northeast corner....                 | 20                   | 4                  | 1             | ...           | 27                               |
| Jackson and Price streets, northeast corner.....                    | 20                   | 4                  | 1             | ...           | 26                               |
| Jackson and St. Peter streets, southeast corner.....                | 20                   | 4                  | 1             | ...           | 27                               |
| Jackson and Second streets, northwest corner.....x                  | 9                    | 4                  | 1             | ...           | 24                               |
| Jackson and Third streets, southwest corner.....x                   | 20                   | 4                  | 1             | ...           | 26                               |
| Jackson and Fourth streets, southeast corner.....                   | 20                   | 4                  | ...           | 1             | 30                               |
| Jackson and Fifth streets, northwest corner.....                    | 20                   | 4                  | 1             | ...           | 25                               |
| Kensington and Cedar streets, southeast corner.....x                | 21                   | 4                  | 1             | ...           | 62                               |
| Kensington and Robinson streets, southeast corner....               | 16                   | 4                  | 1             | ...           | 62                               |
| Kensington and Elm streets, southwest corner.....x                  | 9                    | 4                  | 1             | ...           | 62                               |
| Laurel street, west side, south of Holly street.....x               | 13                   | 4                  | 1             | ...           | 34                               |
| Laurel and Holly streets, southeast corner.....x                    | 12                   | 4                  | 1             | ...           | 26                               |
| Leigh street, south side R. F. and P. shops.....                    | ...                  | ...                | ...           | ...           | 24                               |
| Leigh and Harrison streets, southeast corner.....                   | 13                   | 4                  | 1             | ...           | 25                               |
| Leigh and Kinney streets, northwest corner.....                     | 23                   | 4                  | 1             | ...           | 19                               |
| Leigh and Lombardy streets, northwest corner.....                   | 11                   | 4                  | 1             | ...           | 14                               |
| Leigh and Bowe streets, northwest corner.....                       | 12                   | 4                  | 1             | ...           | 17                               |
| Leigh and Hancock streets, southeast corner.....                    | 13                   | 4                  | 1             | ...           | 29                               |
| Leigh and Gilmer streets southeast corner.....                      | 13                   | 4                  | 1             | ...           | 21                               |
| Leigh and Graham streets, northwest corner.....                     | 25                   | 4                  | 1             | ...           | 28                               |

Sign x means branches on cross streets.

TABLE No. 8—(CONTINUED.)

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Leigh and Munford streets, southeast corner.....                   | 25                   | 4                  | 1             |               | 27                               |
| Leigh and Brook avenue, southeast corner.....                      | 25                   | 4                  |               | 1             | 26                               |
| Leigh and St. Peter streets, northeast corner.....                 | 25                   | 4                  |               | 1             | 26                               |
| Leigh and Adams streets, southwest corner.....                     | 25                   | 4                  |               | 1             | 25                               |
| Leigh and St. James streets, northwest corner.....                 | 25                   | 4                  |               | 1             | 25                               |
| Leigh and First streets, northwest corner.....                     | 25                   | 4                  |               | 1             | 24                               |
| Leigh and Second streets, northwest corner.....x                   | 25                   | 4                  | 1             |               | 25                               |
| Leigh and Third streets, northeast corner.....                     | 12                   | 4                  | 1             |               | 24                               |
| Leigh and Fourth streets, southeast corner.....x                   | 25                   | 4                  | 1             |               | 24                               |
| Leigh and Fifth streets, southwest corner.....                     | 21                   | 4                  | 1             |               | 21                               |
| Leigh and Sixth streets, northeast corner.....                     | 25                   | 3                  | 1             |               | 21                               |
| Leigh and Seventh streets, southeast corner.....x                  | 25                   | 4                  |               | 1             | 22                               |
| Leigh and Eighth streets, southwest corner.....                    | 25                   | 4                  | 1             |               | 21                               |
| Leigh and Ninth streets, southwest corner.....                     | 18                   | 4                  | 1             |               | 22                               |
| Leigh and Tenth streets, northeast corner.....                     | 21                   | 4                  | 1             |               | 27                               |
| Leigh and Thirteenth streets, southwest corner.....                | 20                   | 4                  | 1             |               | 77                               |
| Leigh and Twenty-second streets, southwest corner...x              | 11                   | 4                  | 1             |               | 36                               |
| Leigh and Twenty-third streets, northwest corner...x               | 9                    | 4                  | 1             |               | 36                               |
| Leigh and Twenty-fourth streets, southeast corner...x              | 25                   | 4                  | 1             |               | 38                               |
| Leigh and Twenty-fifth streets, southeast corner...x               | 25                   | 4                  |               | 1             | 32                               |
| Leigh and Twenty-sixth streets, southwest corner.....              | 25                   | 4                  | 1             |               | 35                               |
| Leigh and Twenty-seventh streets, northwest corner.....            | 27                   | 4                  | 1             |               | 30                               |
| Leigh and Twenty-eighth streets, southeast corner...x              | 25                   | 4                  | 1             |               | 25                               |
| Leigh and Twenty-ninth streets, southeast corner...x               | 25                   | 4                  | 1             |               | 25                               |
| Leigh and Thirtieth streets, southeast corner.....x                | 27                   | 4                  | 1             |               | 23                               |
| Leigh and Thirty-first streets, southwest corner.....x             | 15                   | 4                  | 1             |               | 28                               |
| Leigh and Thirty-third streets, southwest corner...x               | 16                   | 4                  | 1             |               | 33                               |
| Lester street, east side, north of Williamsburg avenue.....x       | 20                   | 4                  | 1             |               | 46                               |
| Lombardy street, 30 feet south of north corporation line.....x     | 12                   | 4                  | 1             |               | 19                               |
| Lombardy street (private) in grounds of Va. Union University.....x | 10                   | 4                  | 1             |               | 14                               |
| Lester and Ash streets, southwest corner.....                      | 22                   | 4                  | 1             |               | 55                               |
| Lester and Pear streets, southwest corner.....x                    | 14                   | 4                  | 1             |               | 27                               |
| Lester and Elm streets, northwest corner.....                      | 14                   | 4                  | 1             |               | 55                               |
| Lester and Hague streets, northwest corner.....                    | 22                   | 4                  | 1             |               | 61                               |
| Lester street, north side, 400 feet east of Gillie's creek.....    | 22                   | 4                  | 1             |               | 54                               |
| Lester and Nicholson streets, southeast corner.....                | 22                   | 4                  | 1             |               | 48                               |
| Lester and Louisiana streets, northwest corner.....                | 22                   | 4                  | 1             |               | 37                               |
| Lester and Orleans streets, northeast corner.....                  | 6                    | 4                  | 1             |               | 51                               |
| Louisiana and Second streets.....x                                 | 22                   | 4                  | 1             |               | 40                               |
| Louisiana and Fourth streets, southeast corner...x                 | 18                   | 4                  | 1             |               | 36                               |
| Louisiana and Sixth streets, southeast corner...x                  | 18                   | 4                  | 1             |               | 37                               |
| Louisiana and Seventh streets, northwest corner...x                | 5                    | 4                  | 1             |               | 45                               |
| Louisiana and Gilliam streets, southwest corner...x                | 17                   | 4                  | 1             |               | 40                               |
| Main and Sheppard streets, northwest corner.....x                  | 9                    | 4                  | 1             |               | 66                               |
| Main and Deep Run streets, northwest corner.....x                  | 9                    | 4                  | 1             |               | 65                               |
| Main and Mulberry streets, southwest corner.....                   | 10                   | 4                  | 1             |               | 59                               |
| Main and Robinson streets, southwest corner.....                   | 10                   | 4                  | 1             |               | 59                               |
| Main and Cedar streets, southwest corner.....                      | 10                   | 4                  | 1             |               | 59                               |
| Main and Elm streets, southwest corner.....                        | 10                   | 4                  | 1             |               | 60                               |
| Main and Strawberry streets, northwest corner.....                 | 10                   | 4                  | 1             |               | 62                               |
| Main and Sycamore streets, southwest corner.....                   | 10                   | 4                  | 1             |               | 64                               |
| Main and Rowland streets, northwest corner.....                    | 10                   | 4                  | 1             |               | 65                               |
| Main and Meadow streets, northwest corner.....                     | 10                   | 4                  | 1             |               | 64                               |
| Main and Park streets, southwest corner.....                       | 10                   | 4                  | 1             |               | 64                               |
| Main and Walnut streets, southwest corner.....                     | 10                   | 4                  | 1             |               | 64                               |
| Main and Vine streets, southwest corner.....                       | 10                   | 4                  | 1             |               | 64                               |

Sign x means branches on cross streets.



TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Main and Lombardy streets, southeast corner.....                                       | 15                   | 4                  | 1             | ...           | 15                               |
| Main and Belvidere streets, northeast corner.....x                                     | 12                   | 4                  | 1             | ...           | 24                               |
| Main and Plum streets, northwest corner.....   | 25                   | 4                  | 1             | ...           | 15                               |
| Main and Harvie streets, southwest corner.....   | 15                   | 4                  | 1             | ...           | 17                               |
| Main and Linden streets, northwest corner.....   | 10                   | 4                  | 1             | ...           | 23                               |
| Main and Short streets, northwest corner.....x   | 27                   | 4                  | 1             | ...           | 18                               |
| Main and Reservoir streets, southwest corner.....                                      | 13                   | 4                  | 1             | ...           | 18                               |
| Main and Morris streets, southeast corner.....x  | 21                   | 4                  | 1             | ...           | 29                               |
| Main and Cherry streets, southeast corner.....   | 25                   | 4                  | 1             | ...           | 18                               |
| Main and Laurel streets, northwest corner.....x  | 15                   | 4                  | 1             | ...           | 18                               |
| Main and Pine streets, southwest corner.....x  | 18                   | 4                  | 1             | ...           | 21                               |
| Main and Monroe streets, northeast corner.....   | 25                   | 4                  | 1             | ...           | 32                               |
| Main and Madison streets, southwest corner.....  | 25                   | 4                  | ...           | 1             | 35                               |
| Main and Jefferson streets, southeast corner.....                                      | 18                   | 4                  | 1             | ...           | 24                               |
| Main and Adams streets, southwest corner.....x   | 21                   | 4                  | 1             | ...           | 25                               |
| Main and Foushee streets, northwest corner.....x                                       | 15                   | 4                  | 1             | ...           | 25                               |
| Main and First streets, southeast corner.....x   | 21                   | 4                  | 1             | ...           | 24                               |
| Main and Second streets, southeast corner.....   | 25                   | 3                  | ...           | 1             | 22                               |
| Main and Third streets, southeast corner.....  | 21                   | 4                  | 1             | ...           | 24                               |
| Main and Fourth streets, northeast corner.....   | 25                   | 4                  | 1             | ...           | 37                               |
| Main and Fifth streets, southeast corner.....x   | 19                   | 4                  | 1             | ...           | 21                               |
| Main and Sixth streets, northwest corner.....  | 25                   | 4                  | 1             | ...           | 34                               |
| Main and Seventh streets, northeast corner.....x                                       | 21                   | 4                  | 1             | ...           | 39                               |
| Main and Seventh streets, southwest corner.....  | 25                   | 4                  | 1             | ...           | 42                               |
| Main and Eighth streets, northeast corner.....   | 26                   | 4                  | 1             | ...           | 22                               |
| Main and Eighth streets, northwest corner.....   | 9                    | 4                  | 1             | ...           | 50                               |
| Main, north side, 50 feet west of ninth street.....                                    | 9                    | 4                  | 1             | ...           | 54                               |
| Main and Ninth streets, southeast corner.....x   | 25                   | 4                  | 1             | ...           | 29                               |
| Main, west side of Ninth street, 15 feet north of Main.....x                           | 14                   | 4                  | 1             | ...           | 52                               |
| Main and Tenth streets, northeast corner.....  | 10                   | 4                  | 1             | ...           | 56                               |
| Main and Eleventh streets, northwest corner.....x                                      | 27                   | 4                  | 1             | ...           | 50                               |
| Main and Twelfth streets, northwest corner.....  | 25                   | 4                  | ...           | 1             | 59                               |
| Main and Twelfth streets, southeast corner.....x                                       | 10                   | 4                  | 1             | ...           | 31                               |
| Main and Thirteenth streets, northwest corner.....                                     | 10                   | 4                  | 1             | ...           | 65                               |
| Main and Fourteenth streets, southeast corner.....x                                    | 21                   | 4                  | 1             | ...           | 42                               |
| Main street north side, 150 feet west of Fourteenth street.....                        | 25                   | 3                  | 1             | ...           | 42                               |
| Main street, south side, 165 feet east of Fourteenth street.....                       | 25                   | 3                  | 1             | ...           | 50                               |
| Main street and Locust alley, northeast corner.....                                    | 25                   | 4                  | 1             | ...           | 51                               |
| Main street, north side, 225 feet east of Fifteenth street.....                        | 25                   | 4                  | 1             | ...           | 58                               |
| Main and Fifteenth streets, northwest corner.....                                      | 11                   | 4                  | 1             | ...           | 56                               |
| Main street, north side, 90 feet west of Seventeenth street.....                       | 25                   | 4                  | 1             | ...           | 58                               |
| Main and Thirteenth streets, southwest corner.....                                     | 10                   | 4                  | 1             | ...           | 38                               |
| Main and Seventeenth streets, southeast corner.....x                                   | 25                   | 4                  | 1             | ...           | 58                               |
| Main and Eighteenth streets, southeast corner.....x                                    | 25                   | 4                  | ...           | 1             | 52                               |
| Main and Eighteenth streets, northwest corner.....                                     | 10                   | 4                  | 1             | ...           | 52                               |
| Main and Nineteenth streets, northwest corner.....x                                    | 25                   | 4                  | 1             | ...           | 48                               |
| Main and Twentieth streets, northwest corner.....                                      | 25                   | 4                  | 1             | ...           | 45                               |
| Main street, south side, between Twentieth and Twenty-first street (engine house)..... | 25                   | 4                  | 1             | ...           | 44                               |
| Main and Twentieth streets southeast corner.....x                                      | 21                   | 4                  | 1             | ...           | 45                               |
| Main and Twenty-first streets, northwest corner....x                                   | 25                   | 3                  | ...           | 1             | 42                               |
| Main and Twenty-first streets, southeast corner....x                                   | 23                   | 4                  | 1             | ...           | 44                               |
| Main and Twenty-second streets, southeast corner....                                   | 25                   | 4                  | 1             | ...           | 38                               |
| Main and Twenty-second streets, northwest corner....                                   | 10                   | 4                  | 1             | ...           | 38                               |
| Main and Twenty-third streets, northwest corner....                                    | 21                   | 4                  | 1             | ...           | 36                               |

Sign x means branches on cross streets.

TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|---|----------------------|--------------------|---------------|---------------|----------------------------------|
| Main and Twenty-fourth streets, northwest corner....                          | 25                   | 4                  | 1             | ...           | 35                               |
| Main and Twenty-fifth streets, southeast corner....                           | 25                   | 4                  | 1             | ...           | 35                               |
| Main and Twenty-fifth streets, northwest corner....                           | 10                   | 4                  | 1             | ...           | 34                               |
| Main and Twenty-sixth streets, northwest corner....                           | 25                   | 4                  | 1             | ...           | 36                               |
| Main and Twenty-seventh streets, northeast corner....                         | 25                   | 4                  | 1             | ...           | 30                               |
| Main and Lester streets, southeast corner.....                                | 25                   | 4                  | ...           | 1             | 31                               |
| Main and Twenty-ninth streets, northeast corner....x                          | 25                   | 4                  | 1             | ...           | 30                               |
| Main and Thirtieth streets, northwest corner.....                             | 25                   | 4                  | ...           | 1             | 32                               |
| Main and Thirty-first streets, northwest corner.....                          | 17                   | 4                  | 1             | ...           | 51                               |
| M and Ninth streets, southeast corner.....x                                   | 25                   | 4                  | 1             | ...           | 25                               |
| M and Tenth streets, southwest corner.....x                                   | 25                   | 4                  | ...           | 1             | 22                               |
| M and Thirteenth streets, northwest corner.....x                              | 22                   | 4                  | 1             | ...           | 45                               |
| M and Thirty-third streets, southwest corner.....x                            | 9                    | 4                  | ...           | 1             | 27                               |
| M and Twenty-fourth streets, southeast corner....x                            | 15                   | 4                  | 1             | ...           | 30                               |
| M and Twenty-fifth streets, northwest corner....x                             | 25                   | 4                  | 1             | ...           | 35                               |
| M and Twenty-sixth streets, southwest corner....x                             | 21                   | 4                  | 1             | ...           | 31                               |
| M and Twenty-seventh streets, southeast corner....x                           | 15                   | 4                  | 1             | ...           | 29                               |
| M and Twenty-eighth streets, northeast corner.....                            | 10                   | 4                  | 1             | ...           | 27                               |
| M and Twenty-ninth streets, southeast corner.....x                            | 8                    | 4                  | 1             | ...           | 23                               |
| M and Thirtieth streets, northwest corner.....x                               | 16                   | 4                  | 1             | ...           | 21                               |
| M and Thirty-first streets, southwest corner.....x                            | 14                   | 4                  | 1             | ...           | 25                               |
| M and Thirty-second streets, southwest corner.....                            | 15                   | 4                  | 1             | ...           | 27                               |
| M and Thirty-third streets, southwest corner.....                             | 15                   | 4                  | 1             | ...           | 30                               |
| M and Thirty-fourth streets, southwest corner.....                            | 15                   | 4                  | 1             | ...           | 31                               |
| Meadow street, west side, at alley north of Franklin..x                       | 21                   | 4                  | 1             | ...           | 14                               |
| Marshall and Bowe streets, northwest corner.....x                             | 9                    | 4                  | 1             | ...           | 17                               |
| Marshall and Kinney streets, northeast corner.....                            | 22                   | 4                  | 1             | ...           | 18                               |
| Marshall and Norton streets, southeast corner.....                            | 20                   | 4                  | 1             | ...           | 19                               |
| Marshall and Graham streets, northwest corner....x                            | 9                    | 4                  | 1             | ...           | 23                               |
| Marshall and Harrison streets, northeast corner....                           | 21                   | 4                  | 1             | ...           | 23                               |
| Marshall and Hancock streets, southwest corner.....                           | 25                   | 4                  | ...           | 1             | 21                               |
| Marshall street, north side, between Hancock and Graham streets.....          | 25                   | 4                  | 1             | ...           | 21                               |
| Marshall and Gilmer streets, northwest corner.....                            | 25                   | 4                  | 1             | ...           | 23                               |
| Marshall and Munford streets, southwest corner....                            | 25                   | 4                  | 1             | ...           | 23                               |
| Marshall and Henry streets, southwest corner.....                             | 25                   | 3                  | 1             | ...           | 23                               |
| Marshall and Monroe streets, southeast corner....                             | 25                   | 4                  | ...           | 1             | 24                               |
| Marshall and Madison streets, northwest corner....x                           | 14                   | 4                  | 1             | ...           | 22                               |
| Marshall and Jefferson streets, northeast corner....                          | 15                   | 4                  | 1             | ...           | 22                               |
| Marshall and Adams streets, northwest corner.....                             | 25                   | 4                  | ...           | 1             | 19                               |
| Marshall and First streets, northwest corner.....                             | 21                   | 4                  | 1             | ...           | 24                               |
| Marshall and Second streets, southeast corner....x                            | 25                   | 4                  | 1             | ...           | 24                               |
| Marshall and Third streets, northeast corner.....                             | 25                   | 4                  | 1             | ...           | 23                               |
| Marshall and Fourth streets, northeast corner.....                            | 25                   | 4                  | ...           | 1             | 24                               |
| Marshall and Fifth streets, northeast corner.....                             | 25                   | 4                  | ...           | 1             | 24                               |
| Marshall and Sixth streets, southwest corner.....                             | 24                   | 4                  | 1             | ...           | 24                               |
| Marshall near Sixth street, in Market-Armory building near east end wall..... | 35                   | 4                  | 1             | ...           | 20                               |
| Marshall street, near Sixth, in Market-Armory building near center.....       | 60                   | 4                  | 1             | ...           | 20                               |
| Marshall and Seventh streets, northwest corner....                            | 21                   | 4                  | 1             | ...           | 21                               |
| Marshall and Eighth streets, northwest corner....x                            | 2                    | 4                  | 1             | ...           | 20                               |
| Marshall and Ninth streets, northwest corner.....                             | 21                   | 4                  | 1             | ...           | 17                               |
| Marshall and Tenth streets, northeast corner.....                             | 25                   | 4                  | 1             | ...           | 22                               |
| Marshall and Eleventh streets, southwest corner....                           | 25                   | 4                  | 1             | ...           | 25                               |
| Marshall and Twelfth streets, northwest corner....                            | 25                   | 4                  | ...           | 1             | 25                               |
| Marshall and Thirteenth streets, northeast corner....                         | 23                   | 4                  | 1             | ...           | 40                               |
| Marshall and Fifteenth streets, southwest corner....                          | 25                   | 4                  | ...           | 1             | 46                               |
| Marshall and Union streets, southeast corner.....                             | 25                   | 3                  | 1             | ...           | 50                               |
| Marshall and Sixteenth streets, northeast corner....                          | 16                   | 4                  | 1             | ...           | 58                               |

Sign x means branches on cross streets.



TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|---|----------------------|--------------------|---------------|---------------|----------------------------------|
| Marshall and Seventeenth streets, northeast corner.x            | 25                   | 4                  |               | 1             | 45                               |
| Marshall and Eighteenth streets, northwest corner.x             | 25                   | 4                  | 1             | ...           | 48                               |
| Marshall and Nineteenth streets, southwest corner.x             | 25                   | 4                  | 1             | ...           | 66                               |
| Marshall and Twentieth streets, southeast corner....            | 9                    | 4                  | 1             | ...           | 56                               |
| Marshall and Twenty-first streets, southeast corner..           | 37                   | 4                  | 1             | ...           | 45                               |
| Marshall and Twenty-first streets, southwest corner..           | 14                   | 4                  | 1             | ...           | 36                               |
| Marshall and Twenty-second streets, northeast corner .....      | 25                   | 4                  | 1             |               | 35                               |
| Marshall and Twenty-third streets, northwest corner.x           | 15                   | 4                  | 1             |               | 33                               |
| Marshall and Twenty-fourth streets, northwest corner            | 25                   | 4                  |               | 1             | 39                               |
| Marshall and Twenty-fifth streets, northeast corner.x           | 21                   | 4                  | 1             |               | 29                               |
| Marshall and Twenty-sixth streets, northwest corner.            | 25                   | 4                  |               | 1             | 27                               |
| Marshall and Twenty-seventh streets, southeast corner .....     | 25                   | 4                  |               | 1             | 24                               |
| Marshall and Twenty-eighth streets, northeast corner.           | 25                   | 4                  |               | 1             | 25                               |
| Marshall and Twenty-ninth streets, southeast corner.x           | 20                   | 4                  | 1             | ...           | 27                               |
| Marshall and Thirtieth streets, northwest corner....            | 25                   | 4                  |               | 1             | 28                               |
| Marshall and Thirty-first streets, southeast corner....         | 21                   | 4                  | 1             | ...           | 29                               |
| Marshall and Thirty-second streets, northeast corner.           | 22                   | 4                  | 1             | ...           | 28                               |
| Marshall and Thirty-third streets, southwest corner..           | 24                   | 4                  | 1             | ...           | 31                               |
| Marshall and Thirty-fourth streets, northwest corner.x          | 16                   | 4                  | 1             | ...           | 30                               |
| Marshall and Thirty-seventh street, southwest corner.           | 10                   | 4                  | 1             |               | 31                               |
| Mosby and Clay streets, northwest corner.....x                  | 12                   | 4                  | 1             |               | 22                               |
| Moore and Lombardy streets, southeast corner.....               | 7½                   | 4                  | 1             |               |                                  |
| Moore and Bowe streets, southwest corner.....                   | 7                    | 4                  | 1             |               | 17                               |
| Moore and Graham streets, southwest corner.....                 | 6                    | 4                  | 1             | ...           | 39                               |
| Moore and Gilmer streets, southwest corner.....                 | 19                   | 4                  | 1             |               | 40                               |
| Moore and Oak streets, southwest corner.....                    | 8                    | 4                  | 1             | ...           | 40                               |
| Moore and Harrison streets, southeast corner.....               | 18                   | 4                  | 1             |               | 31                               |
| Moore and Norton streets, northeast corner.....                 | 19                   | 4                  | 1             | ...           | 28                               |
| Moore and Kinney streets, southwest corner.....x                | 23                   | 4                  | 1             |               | 24                               |
| Mulberry street and alley north of Monument avenue.             | 14                   | 4                  | 1             | ...           | 68                               |
| Maple street, south side, sixty feet from Gas Works fence ..... | 15                   | 4                  | 1             |               | 58                               |
| Ninth street between Byrd and Arch streets (west side) .....    | 11                   | 4                  | 1             |               | 43                               |
| Ninth street between Canal and Byrd streets (west side) .....   | 21                   | 4                  | 1             |               | 33                               |
| Ninth street, 500 feet north of M street.....                   | 25                   | 4                  | 1             | ...           | 25                               |
| N and Twenty-third streets, northeast corner.....x              | 6                    | 4                  | 1             | ...           | 22                               |
| N and Twenty-fourth streets, northeast corner.....              | 28                   | 4                  | 1             | ...           | 29                               |
| N and Twenty-fifth streets, northeast corner.....x              | 25                   | 4                  | 1             |               | 40                               |
| N and Twenty-sixth streets, southeast corner.....x              | 20                   | 4                  | 1             | ...           | 35                               |
| N and Twenty-seventh streets, southeast corner.....x            | 16                   | 4                  | 1             | ...           | 25                               |
| N and Twenty-eighth streets, southwest corner.....              | 15                   | 4                  | 1             | ...           | 19                               |
| N and Twenty-ninth streets, southeast corner.....               | 20                   | 4                  | 1             | ...           | 17                               |
| N and Thirtieth streets, southwest corner.....x                 | 15                   | 4                  | 1             | ...           | 15                               |
| N and Thirty-first streets, southwest corner.....x              | 15                   | 4                  | 1             | ...           | 15                               |
| Nicholson and Colgin streets, southwest corner.....             | 16                   | 4                  | 1             | ...           | 45                               |
| Nicholson and Fifth streets, northeast corner.....x             | 9                    | 4                  | 1             | ...           | 48                               |
| Nicholson and Hopkins streets, northwest corner....x            | 16                   | 4                  | 1             | ...           | 42                               |
| Nicholson and Russell streets, northeast corner.....            | 10                   | 4                  | 1             | ...           | 54                               |
| Nicholson and Erin streets, northeast corner.....x              | 14                   | 4                  | 1             | ...           | 46                               |
| Nicholson and Gilliam streets, southeast corner.....x           | 15                   | 4                  | 1             | ...           | 45                               |
| Orange and First streets, southwest corner.....                 | 25                   | 4                  | 1             | ...           | 32                               |
| O and Twenty-fourth streets, northwest corner.....x             | 24                   | 4                  | 1             | ...           | 25                               |
| O and Twenty-fifth streets, northwest corner.....x              | 25                   | 4                  | 1             | ...           | 24                               |
| O and Twenty-sixth streets, southwest corner.....x              | 20                   | 4                  | 1             | ...           | 25                               |
| O and Twenty-seventh streets, southeast corner.....x            | 12                   | 4                  | 1             | ...           | 25                               |
| O and Twenty-eighth streets, southwest corner.....x             | 19                   | 4                  | 1             | ...           | 21                               |

Sign x means branches on cross streets.

TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of<br>Connection | Size of<br>Connection | Double<br>Nozzle | Single<br>Nozzle | Pressure in Lbs.<br>per Square Inch |
|---|-------------------------|-----------------------|------------------|------------------|-------------------------------------|
| O and Twenty-ninth streets, southeast corner.....x                        | 8                       | 4                     | 1                | ..               | 21                                  |
| O and Thirtieth streets, southwest corner.....x                           | 10                      | 4                     | 1                | ..               | 21                                  |
| Orleans street, east side Second street, near corpora-<br>tion line ..... | 60                      | 4                     | 1                | ..               | 36                                  |
| Orleans and Fourth streets, southeast corner.....x                        | 14                      | 4                     | 1                | ..               | 34                                  |
| Orleans and Fifth streets, northeast corner.....                          | 12                      | 4                     | 1                | ..               | 40                                  |
| Orleans and Sixth streets, southeast corner.....                          | 7                       | 4                     | 1                | ..               | 36                                  |
| Orleans and Seventh streets, northwest corner.....                        | 22                      | 4                     | 1                | ..               | 38                                  |
| Park avenue and Boulevard, southwest corner.....                          | 12                      | 4                     | 1                | ..               | 68                                  |
| Park avenue and Mulberry street, southwest corner..                       | 12                      | 4                     | 1                | ..               | 67                                  |
| Park avenue and West street, southeast corner.....                        | 12                      | 4                     | 1                | ..               | 68                                  |
| Park avenue and Robinson street, southwest corner..                       | 14                      | 4                     | 1                | ..               | 63                                  |
| Park avenue and Cedar street, southeast corner.....                       | 15                      | 4                     | 1                | ..               | 61                                  |
| Park avenue and Sycamore street, southwest corner..                       | 12                      | 4                     | 1                | ..               | 65                                  |
| Park avenue and Meadow street, southwest corner..                         | 7                       | 4                     | 1                | ..               | 68                                  |
| Park avenue and Park street, southeast corner.....                        | 16                      | 4                     | 1                | ..               | 65                                  |
| Park avenue and Vine street, southwest corner.....                        | 13                      | 4                     | 1                | ..               | 67                                  |
| Park avenue and Linden street, southeast corner.....x                     | 10                      | 4                     | 1                | ..               | 65                                  |
| Park avenue and Shafer street, northwest corner.....                      | 15                      | 4                     | 1                | ..               | 66                                  |
| Park avenue and Harvie street, southeast corner.....x                     | 12                      | 4                     | 1                | ..               | 65                                  |
| Park avenue and Harrison street, southeast corner...                      | 21                      | 4                     | 1                | ..               | 65                                  |
| Pulliam and Prentiss streets, southeast corner.....                       | 15                      | 4                     | 1                | ..               | 20                                  |
| Preston and Fourth streets, southwest corner.....                         | 25                      | 4                     | 1                | ..               | 21                                  |
| Preston and Fifth streets, southeast corner.....                          | 21                      | 4                     | 1                | ..               | 32                                  |
| Preston and Sixth streets, southeast corner.....                          | 25                      | 4                     | 1                | ..               | 20                                  |
| Preston and Seventh streets, northwest corner.....x                       | 25                      | 4                     | 1                | 1                | 21                                  |
| Pickett street, 60 feet north of Clay street.....x                        | 6                       | 4                     | 1                | ..               | 30                                  |
| P and Twenty-first streets, northwest corner.....x                        | 15                      | 4                     | 1                | ..               | 35                                  |
| P and Twenty-fifth streets, southwest corner.....x                        | 25                      | 4                     | 1                | ..               | 17                                  |
| P and Twenty-sixth streets, northeast corner.....x                        | 9                       | 4                     | 1                | ..               | 23                                  |
| P and Twenty-seventh streets, southwest corner.....                       | 12                      | 4                     | 1                | ..               | 20                                  |
| P and Twenty-eighth streets, southeast corner.....x                       | 10                      | 4                     | 1                | ..               | 20                                  |
| P and Twenty-ninth streets, northeast corner.....x                        | 9                       | 4                     | 1                | ..               | 15                                  |
| P and Thirtieth streets, southwest corner.....                            | 10                      | 4                     | 1                | ..               | 16                                  |
| Pleasants and Mosby streets, northwest corner.....x                       | 12                      | 4                     | 1                | ..               | 28                                  |
| Pleasants and Twenty-first streets, southwest corner..                    | 15                      | 4                     | 1                | ..               | 31                                  |
| Pleasants and Twenty-second streets, northwest cor-<br>ner .....          | 9                       | 4                     | 1                | ..               | 22                                  |
| Q and Twentieth streets, northeast corner.....x                           | ..                      | 4                     | 1                | ..               | 34                                  |
| Q and Twenty-first streets, northeast corner.....x                        | ..                      | 4                     | 1                | ..               | 32                                  |
| Q and Twenty-second streets, northwest corner.....x                       | ..                      | 4                     | 1                | ..               | 30                                  |
| Q and Twenty-third streets, southwest corner.....x                        | ..                      | 4                     | 1                | ..               | 31                                  |
| Q and Twenty-sixth streets, northwest corner.....                         | 20                      | 4                     | 1                | ..               | 13                                  |
| Q and Twenty-seventh streets, southwest corner.....                       | 22                      | 4                     | 1                | ..               | 16                                  |
| Q and Twenty-ninth streets, northwest corner.....                         | 7                       | 4                     | 1                | ..               | 20                                  |
| R and Twentieth streets, northeast corner.....x                           | ..                      | 4                     | 1                | ..               | 38                                  |
| R and Twenty-second streets, southwest corner.....x                       | ..                      | 4                     | 1                | ..               | 33                                  |
| R and twenty-fourth streets, southwest corner.....x                       | ..                      | 4                     | 1                | ..               | 28                                  |
| R and Twenty-fifth streets, northwest corner.....x                        | 15                      | 4                     | 1                | ..               | 25                                  |
| R and Twenty-sixth streets, southeast corner.....x                        | 10                      | 4                     | 1                | ..               | 20                                  |
| R and Twenty-seventh streets, southwest corner.....                       | 7                       | 4                     | 1                | ..               | 22                                  |
| R and Twenty-eighth streets, southwest corner.....x                       | 11                      | 4                     | 1                | ..               | 24                                  |
| Robinson and Beverly streets, northwest corner.....                       | 6                       | 4                     | 1                | ..               | 60                                  |
| Road, east of Reservoir Lake, west side near Lake..x                      | 14                      | 4                     | 1                | ..               | 60                                  |
| Robinson and Chaffin streets, southeast corner.....                       | 10                      | 4                     | 1                | ..               | 60                                  |
| Robinson and Cary streets, southeast corner.....                          | 23                      | 4                     | 1                | ..               | 60                                  |
| Robinson street and alley north of Grace, southeast<br>corner .....       | 12                      | 4                     | 1                | ..               | 65                                  |
| Robinson street and alley north of Monument avenue,<br>east side .....    | 14                      | 4                     | 1                | ..               | 68                                  |

Sign x means branches on cross streets.

TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION  | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs per Square Inch |
|---|----------------------|--------------------|---------------|---------------|---------------------------------|
| Rowland and Ivy streets, southwest corner.....                                | 9                    | 4                  | 1             |               | 69                              |
| Randolph and Taylor streets, southeast corner.....                            | 13                   | 4                  | 1             |               | 19                              |
| Randolph and Winder streets, northwest corner.....                            | 6                    | 1                  | 1             |               | 30                              |
| Randolph street, east side, at River View Cemetery..                          | 27                   | 1                  | 1             |               | 30                              |
| Randolph and Beverly streets, southwest corner....x                           | 9                    | 4                  | 1             |               | 21                              |
| Reservoir and Ashland streets, southeast corner.....                          | 15                   | 4                  | 1             |               | 28                              |
| Reservoir and Taylor streets, southwest corner.....                           | 11                   | 4                  | 1             |               | 24                              |
| Roane and Cabell streets, southeast corner.....                               | 11                   | 4                  | 1             |               | 25                              |
| Ross and Fourteenth streets, northwest corner.....                            | 20                   | 4                  | 1             |               | 44                              |
| Ross and Mayo streets, southwest corner.....                                  | 20                   | 3                  | 1             |               | 54                              |
| Spring and Belvidere streets, northwest corner....x                           | 10                   | 4                  | 1             |               | 31                              |
| Soldier's Home .....  |                      | 4                  | 1             |               | 64                              |
| Spring street, south side, 300 feet east of Belvidere street .....            | 16                   | 4                  | 1             |               | 35                              |
| Spring and Pine streets, southwest corner.....x                               | 13                   | 4                  | 1             |               | 24                              |
| Spring and Laurel streets, southeast corner.....x                             | 22                   | 4                  | 1             |               | 20                              |
| Spring and Cherry streets, southeast corner.....                              | 30                   | 4                  | 1             |               | 33                              |
| Spring and First streets, southwest corner.....x                              | 19                   | 4                  | 1             |               | 42                              |
| S street or Fairmount avenue and Nineteenth street, southwest corner .....    |                      | 4                  | 1             |               | 40                              |
| S street or Fairmount avenue and Twenty-first street, southwest corner .....  |                      | 4                  | 1             |               | 37                              |
| S street or Fairmount avenue and Twenty-third street, northwest corner .....  |                      | 4                  | 1             |               | 33                              |
| S and Twenty-eighth streets, southeast corner....x                            | 20                   | 4                  | 1             |               | 25                              |
| St. James and Bacon streets, southwest corner.....                            |                      | 4                  | 1             |               | 55                              |
| Second street, 200 feet north of Hospital street, east side .....             | 14                   | 4                  | 1             |               | 44                              |
| Second street, 767 feet north of Hospital street, east side .....             | 7                    | 4                  | 1             |               | 62                              |
| Sixth street, south of Marshall street (meat market) .....                    |                      | 3                  |               | 1             | 22                              |
| Sixth street, north of Marshall street (in market)....x                       | 32                   | 4                  | 1             |               | 22                              |
| Sixth street between Leigh and Duval streets, southeast corner of alley ..... | 20                   | 4                  | 1             |               | 28                              |
| Seventh street, east side, 500 feet north of Leigh street .....               | 25                   | 4                  | 1             |               | 25                              |
| Seventeenth street, west side, 75 feet north of Franklin street .....         | 20                   | 4                  | 1             |               | 59                              |
| Seventeenth street, west side (fish market) north of Franklin street .....    | 20                   | 4                  | 1             |               | 58                              |
| Seventeenth street, west side, 150 feet north of Main street .....            | 25                   | 4                  | 1             |               | 57                              |
| Seventeenth and Brown streets, southwest corner....x                          | 19                   | 4                  | 1             |               | 48                              |
| Seventeenth and Jay streets, southeast corner....x                            | 18                   | 4                  | 1             |               | 42                              |
| Seventeenth and Washington streets, southeast corner .....                    | 18                   | 4                  |               | 1             | 45                              |
| Seventeenth and Christian streets, southeast corner..x                        | 18                   | 4                  | 1             |               | 45                              |
| Seventeenth and Richards streets, southeast corner..x                         | 16                   | 4                  | 1             |               | 46                              |
| Seventeenth and Baldwin streets, southeast corner..x                          | 18                   | 4                  |               | 1             | 46                              |
| Seventeenth and Lowmes streets, southeast corner..x                           | 18                   | 4                  |               | 1             | 62                              |
| Seventeenth and Accommodation streets, southeast corner .....                 | 18                   | 4                  |               | 1             | 61                              |
| Seventeenth and Hospital streets, southwest corner..x                         | 12                   | 4                  | 1             |               | 57                              |
| State and Erin streets, northwest corner.....x                                | 14                   | 4                  | 1             |               | 40                              |
| State and Gilliam streets, southwest corner.....x                             | 14                   | 4                  | 1             |               | 41                              |
| Tredegar Iron Works .....   | 3                    | 3                  |               |               | 36                              |
| T and Twentieth streets, southwest corner.....x                               |                      | 4                  | 1             |               | 87                              |
| T and Twenty-third streets, southwest corner.....x                            |                      | 4                  | 1             |               | 30                              |
| T and Twenty-fourth streets, southwest corner.....x                           | 13                   | 4                  | 1             |               | 26                              |

Sign x means branches on cross streets.

TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs. per Square Inch |
|--|----------------------|--------------------|---------------|---------------|----------------------------------|
| Taylor and Carter streets, southeast corner.....                           | 10                   | 4                  | 1             |               | 13                               |
| Taylor and Cedar streets, northeast corner.....                            | 25                   | 4                  | 1             |               | 61                               |
| Taylor and Washington streets, southeast corner....                        | 10                   | 4                  | 1             |               | 12                               |
| Taylor and Lady streets, southwest corner.....                             | 10                   | 4                  | 1             |               | 12                               |
| Tenth street, 430 feet south of Byrd street, east side..x                  | 20                   | 4                  | 1             |               | 50                               |
| Tenth street, east side, between Cary and Main streets.....x               | 25                   | 4                  | 1             |               | 27                               |
| Thirteenth street, south of Cary street, west side....x                    |                      | 4                  | 1             |               | 48                               |
| Thirteenth street, west side, 232 feet south of Canal street.....x         | 8                    | 4                  | 1             |               | 50                               |
| Thirteenth street (east) and Shockoe Warehouse....x                        | 13                   | 4                  | 1             |               | 42                               |
| Thirteenth street (at south end).....x                                     | 16                   | 4                  | 1             |               | 21                               |
| Thirteenth street between Main and Franklin streets, east side.....x       | 19                   | 4                  | 1             |               | 63                               |
| Thirteenth street, west side, 140 feet north of Ross street.....x          | 27                   | 4                  | 1             |               | 36                               |
| Thirteenth street, east side, between Clay and Leigh streets.....x         | 15                   | 4                  |               | 1             | 68                               |
| Twenty-fifth street, west side, north of Broad street (engine house).....x | 25                   | 4                  | 1             |               | 24                               |
| Tyler and Calhoun streets, southeast corner.....                           | 12                   | 4                  | 1             |               | 2                                |
| U and Twentieth streets, southwest corner.....x                            | 15                   | 4                  | 1             |               | 34                               |
| U and Twenty-first streets, southeast corner.....x                         |                      | 4                  | 1             |               | 34                               |
| U and Twenty-second streets, southwest corner.....x                        |                      | 4                  | 1             |               | 31                               |
| U and Twenty-third streets, southeast corner.....x                         |                      | 4                  | 1             |               | 34                               |
| Valentine's abattoir.....  |                      |                    |               | 1             | 21                               |
| V and Twenty-third streets, northwest corner.....x                         | 12                   | 4                  | 1             |               | 24                               |
| Virginia Penitentiary (inside enclosures).....                             |                      | 4                  |               | 1             |                                  |
| Virginia Penitentiary (inside enclosures).....                             |                      | 4                  |               | 1             |                                  |
| Virginia Penitentiary (inside enclosures).....                             |                      | 4                  | 1             |               |                                  |
| Virginia Penitentiary (inside enclosures).....                             |                      | 4                  | 1             |               |                                  |
| Virginia Penitentiary (outside).....                                       |                      | 4                  |               | 1             | 21                               |
| Virginia street, west side, near R. & D. Depot.....x                       | 25                   | 4                  | 1             |               | 55                               |
| Virginia street, and Mill street, northeast corner....                     | 30                   | 4                  | 1             |               | 50                               |
| Venable and Seventeenth streets, northwest corner..x                       | 20                   | 4                  | 1             |               | 42                               |
| Venable and Eighteenth streets, northwest corner....                       | 20                   | 4                  | 1             |               | 31                               |
| Venable and Mosby streets, northeast corner.....                           | 20                   | 4                  | 1             |               | 20                               |
| Venable and Pickett streets, southeast corner.....                         | 20                   | 4                  | 1             |               | 25                               |
| Venable and Scott streets, northeast corner.....                           | 20                   | 4                  | 1             |               | 21                               |
| Venable and Jessamine streets, southeast corner....                        | 20                   | 4                  | 1             |               | 21                               |
| Venable and Tulip streets, northwest corner.....                           | 20                   | 4                  | 1             |               | 20                               |
| Venable and Pink streets, southwest corner.....                            | 20                   | 4                  | 1             |               | 20                               |
| Venable and Rose streets, northwest corner.....                            | 20                   | 4                  | 1             |               | 21                               |
| Venable and Twenty-fifth streets, southwest corner..                       | 20                   | 4                  | 1             |               | 21                               |
| Winder street, south side, 380 feet east of Randolph street.....           | 7                    | 4                  | 1             |               | 25                               |
| West avenue and Lombardy street, northeast corner..                        | 11                   | 4                  | 1             |               | 64                               |
| West avenue and Birch street, southeast corner.....                        | 17                   | 4                  | 1             |               | 65                               |
| West avenue and Boyd street, northwest corner.....                         | 11                   | 4                  | 1             |               | 66                               |
| Wharf street and Old Dominion Steamship Co.'s lot....                      |                      | 4                  | 1             |               | 54                               |
| Wharf street and Old Dominion Steamship Co.'s wharf.....                   |                      |                    |               | 1             | 54                               |
| Williamsburg avenue and Lester street, southeast corner.....x              | 18                   | 4                  | 1             |               | 47                               |
| Williamsburg avenue and Ash street, southeast corner.....                  | 12                   | 4                  | 1             |               | 35                               |
| Williamsburg avenue and Elm street, southwest corner.....                  | 18                   | 4                  |               | 1             | 35                               |
| Williamsburg avenue and Maple street, northwest corner.....                | 25                   | 4                  | 1             |               | 48                               |

Sign x means branches on cross streets.



TABLE No. 8—CONTINUED.

*Fire Hydrants.*

| LOCATION   | Length of<br>Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs.<br>per Square Inch |
|--|-------------------------|--------------------|---------------|---------------|-------------------------------------|
| Williamsburg avenue and City Gas Works (in yard) . . . .               | 26                      | 4                  | 1             | 1             | 46                                  |
| Williamsburg avenue, southside, east of Gas Works . . .                | 16                      | 4                  | 1             | 1             | 50                                  |
| Williamsburg avenue and Hague street, southeast corner . . . . . x     | 8                       | 4                  | 1             | 1             | 52                                  |
| Williamsburg avenue and Nicholson street, northwest corner . . . . . x | 17                      | 4                  | 1             | 1             | 52                                  |
| Williamsburg avenue and Graham street, northeast corner . . . . .      | 20                      | 4                  | 1             | 1             | 39                                  |
| Williamsburg avenue, 20 feet north of Denny street . .                 | 17                      | 4                  | 1             | 1             | 46                                  |
| Williamsburg avenue and State street, northeast corner . . . . .       | 27                      | 4                  | 1             | 1             | 39                                  |
| Williamsburg avenue and Louisiana street, southeast corner . . . . .   | 11                      | 4                  | 1             | 1             | 40                                  |
| Williamsburg avenue and Orleans street, northwest corner . . . . .     | 10                      | 4                  | 1             | 1             | 39                                  |
| Williamsburg avenue and Virginia street, northeast corner . . . . .    |                         |                    |               |               | 42                                  |

Sign x means branches on cross streets.

Total number fire hydrants, December 31, 1909—936.

Sign x means branches on cross streets.

\*There are thirteen fire hydrants in the Tredegar Works.



TABLE No. 9.

*Fire Hydrants.—Washington Ward.*

| LOCATION                              | Length of<br>Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lbs<br>per Square Inch |
|---------------------------------------|-------------------------|--------------------|---------------|---------------|------------------------------------|
| Semmes and Seventh streets            | 24                      | 4                  | 1             |               | 70                                 |
| Semmes and Ninth streets              | 8                       | 4                  | 1             |               | 64                                 |
| Semmes and Eleventh streets           | 8                       | 4                  | 1             |               | 54                                 |
| Semmes and Twelfth streets            | 32                      | 4                  | 1             |               | 49                                 |
| Semmes and Fourteenth streets         | 32                      | 4                  | 1             |               | 49                                 |
| Semmes street and Cowardin avenue     | 32                      | 4                  | 1             |               | 50                                 |
| Semmes and Belle Isle streets         | 8                       | 4                  | 1             |               | 52                                 |
| McDonough and Twelfth streets         | 12                      | 4                  | 1             |               | 51                                 |
| McDonough street and Cowardin avenue  | 12                      | 4                  | 1             |               | 48                                 |
| Perry and Seventh streets             | 24                      | 4                  | 1             |               | 72                                 |
| Perry and Ninth streets               | 32                      | 4                  | 1             |               | 66                                 |
| Perry and Eleventh streets            | 8                       | 4                  | 1             |               | 57                                 |
| Perry and Thirteenth streets          | 32                      | 4                  | 1             |               | 54                                 |
| Perry and Fifteenth streets           | 8                       | 4                  | 1             |               | 49                                 |
| Perry street and Cowardin avenue      | 12                      | 4                  | 1             |               | 50                                 |
| Wall and Pocahontas streets           | 22                      | 4                  | 1             |               | 49                                 |
| Porter and Sixth streets              | 8                       | 4                  | 1             |               | 80                                 |
| Porter and Eighth streets             | 8                       | 4                  | 1             |               | 69                                 |
| Porter and Tenth streets              | 32                      | 4                  | 1             |               | 62                                 |
| Porter and Twelfth streets            | 20                      | 4                  | 1             |               | 54                                 |
| Porter and Fourteenth streets         | 32                      | 4                  | 1             |               | 58                                 |
| Porter and Twenty-first streets       | 8                       | 4                  | 1             |               | 63                                 |
| Bainbridge and Fifth streets          | 14                      | 4                  | 1             |               | 83                                 |
| Bainbridge and Seventh streets        | 24                      | 4                  | 1             |               | 76                                 |
| Bainbridge and Ninth streets          | 32                      | 4                  | 1             |               | 70                                 |
| Bainbridge and Eleventh streets       | 8                       | 4                  | 1             |               | 57                                 |
| Bainbridge and Thirteenth streets     | 32                      | 4                  | 1             |               | 57                                 |
| Bainbridge and Fourteenth streets     | 8                       | 4                  | 1             |               | 56                                 |
| Bainbridge street and Cowardin avenue | 12                      | 4                  | 1             |               | 52                                 |
| Bainbridge and Twenty-first streets   | 8                       | 4                  | 1             |               | 59                                 |
| Hull and First streets                | 8                       | 4                  | 1             |               | 87                                 |
| Hull and Second streets               | 32                      | 4                  | 1             |               | 84                                 |
| Hull and Third streets                | 8                       | 4                  | 1             |               | 87                                 |
| Hull and Fourth streets               | 32                      | 4                  | 1             |               | 84                                 |
| Hull and Sixth streets                | 8                       | 4                  | 1             |               | 80                                 |
| Hull and Seventh streets              | 32                      | 4                  | 1             |               | 77                                 |
| Hull and Eighth streets               | 32                      | 4                  | 1             |               | 74                                 |
| Hull and Ninth streets                | 32                      | 4                  | 1             |               | 69                                 |
| Hull and Tenth streets                | 8                       | 4                  | 1             |               | 64                                 |
| Hull and Eleventh streets             | 32                      | 4                  | 1             |               | 59                                 |
| Hull and Twelfth streets              | 20                      | 4                  | 1             |               | 57                                 |
| Hull and Thirteenth streets           | 32                      | 4                  | 1             |               | 60                                 |
| Hull and Fourteenth streets           | 8                       | 4                  | 1             |               | 62                                 |
| Hull and Fifteenth streets            | 32                      | 4                  | 1             |               | 59                                 |
| Hull and Sixteenth streets            | 32                      | 4                  | 1             |               | 57                                 |
| Hull street and Cowardin avenue       | 12                      | 4                  | 1             |               | 55                                 |
| Hull and Nineteenth streets           | 8                       | 4                  | 1             |               | 55                                 |
| Hull and Twenty-first streets         | 32                      | 4                  | 1             |               | 54                                 |
| Hull and Twenty-second streets        | 32                      | 4                  | 1             |               | 54                                 |
| Decatur and Second streets            | 8                       | 4                  | 1             |               | 89                                 |
| Decatur and Fourth streets            | 32                      | 4                  | 1             |               | 85                                 |
| Decatur and Sixth streets             | 8                       | 4                  | 1             |               | 80                                 |
| Decatur and Seventh streets           | 32                      | 4                  | 1             |               | 79                                 |
| Decatur and Ninth streets             | 8                       | 4                  | 1             |               | 68                                 |
| Decatur and Eleventh streets          | 32                      | 4                  | 1             |               | 58                                 |
| Decatur and Thirteenth streets        | 8                       | 4                  | 1             |               | 59                                 |
| Decatur and Fifteenth streets         | 32                      | 4                  | 1             |               | 58                                 |
| Decatur and Seventeenth streets       | 20                      | 4                  | 1             |               | 57                                 |
| Decatur and Twenty-second streets     | 8                       | 4                  | 1             |               | 54                                 |
| Stockton and Second streets           | 20                      | 4                  | 1             |               | 89                                 |

TABLE No. 9.

*Fire Hydrants, Washington Ward.—Continued.*

| LOCATION                               | Length of<br>Connection | Size of Connection | Double Nozzle | Single Nozzle | Pressure in Lts.<br>per Square Inch. |
|--|-------------------------|--------------------|---------------|---------------|--------------------------------------|
| Stockton and Sixth streets .....       | 14                      | 4                  | 1             |               | 83                                   |
| Stockton and Seventh streets .....     | 14                      | 4                  | 1             |               | 80                                   |
| Stockton and Twelfth streets .....     | 14                      | 4                  | 1             |               | 59                                   |
| Stockton and Eighteenth streets .....  | 14                      | 2                  | 1             |               | 55                                   |
| Everett and Fourth streets .....       | 8                       | 4                  | 1             |               | 88                                   |
| Everett and Sixth streets .....        | 32                      | 4                  | 1             |               | 83                                   |
| Everett and Ninth streets .....        | 8                       | 4                  | 1             |               | 74                                   |
| Everett and Eleventh streets .....     | 32                      | 4                  | 1             |               | 69                                   |
| Everett and Thirteenth streets .....   | 8                       | 4                  | 1             |               | 59                                   |
| Everett and Fifteenth streets .....    | 8                       | 4                  | 1             |               | 62                                   |
| Everett and Seventeenth streets .....  | 8                       | 4                  | 1             |               | 57                                   |
| Everett and Nineteenth streets .....   | 8                       | 4                  | 1             |               | 54                                   |
| Everett and Twenty-first streets ..... | 20                      | 4                  | 1             |               | 55                                   |
| Maury and Fourteenth streets .....     | 20                      | 4                  | 1             |               | 68                                   |
| Maury and Eighteenth streets .....     | 8                       | 2                  |               | 1             | 56                                   |

Total number of fire hydrants in Washington Ward, December 31, 1909—75.

*List of Names Having Use of City Water Free December 31, 1909.*

---

|   |                    |
|---|--------------------|
| City Jail .....   | \$ 32 89           |
| Cemeteries (four) .....                                 | 300 00             |
| Valentine Museum .....                                  | 25 00              |
| Drinking fountains (twenty-four) .....                  | 360 00             |
| Fire hydrants, (936 at \$25.00) .....                   | 23,400 00          |
| Churches (sixty-two) .....                              | 1,240 00           |
| Male Orphan Asylum .....                                | 91 08              |
| Families (two hundred and seventy-five) .....           | 1,375 00           |
| Board of Health, sprinkling and flushing.....           | 700 00             |
| City carts, street sprinkling .....                     | 400 00             |
| Confederate Museum .....                                | 40 00              |
| Cleaning streets .....                                  | 600 00             |
| Private fire service .....                              | 500 00             |
| New Reservoir Lake, road sprinkling, etc.....           | 1,500 00           |
| Street car companies, sprinkling tracks, estimated..... | 244 79             |
| <b>Total .....</b>                                      | <b>\$30,808 76</b> |

---

THE LIBRARY OF THE  
MAY 8 1912  
UNIVERSITY OF ILLINOIS











3 0112 115487644